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HANDBOOK FOR TEACHERS OF EXCEPTIONAL CHILDREN

A WORKSHOP PROJECT

Edited By

JAMES KNIGHT

Director, Extension Teaching Bureau

Division of Extension

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The benefits of education and of useful knowledge, generally diffused through a community, are essential to the preservation of a free government.

Sam Houston

Cultivated mind is the guardian genius of Democracy, and while guided and controlled by virtue, the noblest attribute of man. It is the only dictator that freemen acknowledge, and the only security which freemen desire.

Mirabeau B. Lamar

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TO

PROFESSOR H. T. MANUEL

Pioneer in the field of
individual differences and
exceptional children in Texas

HANDBOOK FOR TEACHERS OF EXCEPTIONAL CHILDREN

Prepared by

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Foreword

The responsibility for meeting the needs of exceptional children in Texas is shared by the schools, certain eleemosynary institutions, the Division of Child Welfare, and the State Department of Health. In addition, there are a number of groups, agencies, and organizations that coöperate in providing special aid or services for exceptional, physically handicapped, and under-privileged children. In fact it would be difficult to find any association, club, or society that does not sponsor or promote some youth or child welfare program.

This handbook deals with the specific problems of the schools in meeting their share of the total responsibility, but always in terms of a coöperative working relationship with the other agencies serving childhood. Its purpose is to help teachers to discover exceptional children, diagnose their needs, and make the necessary adjustments for them. It is written from the point of view that special education is an integral part of general education. Most of the recommendations included in it apply with equal force, directly or indirectly, to the individual problems of all pupils. Certainly the preventive measures that are emphasized in every chapter apply to all children.

Fifty-seven teachers made up the group who have prepared the materials. Each member of the group has tried to give the sort of materials and suggestions that he or she would appreciate most as an administrator or as a classroom teacher.

There are a number of persons who have helped us and to whom we wish to express our sincere appreciation: We are grateful for the inspiration, information, and guidance brought to the workshop by Dr. Elise H. Martens, Chief Exceptional Children and Youth, United States Office of Education; Dr. Harry J. Baker, Director, Psychological Clinic, Detroit Public Schools; Dr. John J. Lee, Dean of the Graduate School, Wayne University; Mr. Howard L. Lackey, Director, Texas Division of Child Welfare; and Mr. J. L. Tenney, Director, Crippled Children's Division, Texas State Department of Health.

We also appreciate the services of Mr. W. E. Allen, Superintendent, Texas State School for the Blind; Mr. Lou Alsup, Commissioner for the Blind and his assistant Miss Erwin; and Mr. J. J. Brown, Director of Rehabilitation, Texas Board for Vocational Education and Mr. Loren T. Johnston in the same office for giving their time and valuable data to the various committees who called upon them for assistance.

We want to thank Dr. F. J. Adams, Professor of Educational Psychology, The University of Texas, who gave unstintingly of his time to the many members of the group who sought his advice and assistance.

We also wish to thank Mr. H. E. Robinson, Director of Special Education, Texas State Department of Education and his able assistant, Miss Cyrene Bell who gave much time and thought to the workshop and help to individuals and committees.

We are especially indebted to Dean T. H. Shelby who arranged for the printing of the handbook.

Austin, Texas
October 1, 1946.

JAMES KNIGHT.

CHAPTER I

Special Education for Exceptional Children–An Overview

Special education, wearing overalls and aprons, has been officially admitted to the education family in Texas. It has come in recognizing that the *show-off* children who have been newly received from time to time in the past have not fared so well at the hands of the general public until they have taken off their party clothes and settled down to useful service. So special education joins the family circle with due modesty, proud of its working status, and grateful for its formal adoption.

Special education is not a strange waif left on the door-step of the schools. It represents a philosophy that has had general acceptance for a long time. It has had a long pre-adoption period in many schools and has proved its worth. Its specific charge is to ameliorate, surmount, or where possible, to eradicate handicaps that beset childhood in six areas: namely, impaired vision, reduced hearing, orthopedic impairment, lowered vitality, defective speech, and nervous disturbances. This is a big responsibility in itself, but there is the larger one of making the expression *all of the children of all the people* literally mean *all.*

Organization of the Overview

Before introducing the detailed discussions relating to the discovery, diagnosis, and treatment of exceptional children in specific classifications, it seems desirable to set up a generalized frame of reference into which all materials must fit. The following topics, which will be discussed in the order named, serve this purpose: The estimated number of exceptional children to be served; educational classification of exceptional children; finding the exceptional child; records and tests that may prove helpful in discovering the exceptional child; a recommended sequence of special education activities and services; and how special education should affect the total school program.

The Number of Exceptional Children

The number of children in each of the six classifications coming under the Texas law is estimated for the State as a whole and for a number of school systems where a program of special education is proposed or in progress, and a similar estimate is also given of the number of exceptional children in five other classifications for whom the schools must provide special treatment.

The data shown in Tables I and II are rough approximations designed to give those interested in special education

TABLE I

Estimated Number of Exceptional Children in Six Classifications for Which State Subsidy Is Provided, Entire State and Twenty-one Cities or Counties

Area or Locality Considered	Classification					
	Blind Partially Seeing*	Deaf Hard of Hearing*	Crippled*	Lowered Vitality*	Defective Speech*	Nervous†
Texas	2,523	18,923	12,615	18,923	18,923	2,523
Abilene	11	82	55	82	82	11
Alice	7	50	33	50	50	7
Austin	28	211	141	211	211	28
Austin County	4	32	22	32	32	4
Beaumont	13	101	67	101	101	13
Bridgeport	1	8	5	8	8	1
Brownsville	14	106	71	106	106	14
Cameron	1	12	8	12	12	1
Corpus Christi	35	267	178	267	267	35
Donley County	3	23	15	23	23	3
Fort Worth	76	573	382	573	573	76
Goose Creek	11	80	53	80	80	11
Jasper	1	12	8	12	12	1
Lubbock	16	121	81	121	121	16
Midway	1	2	2	2	2	1
Port Arthur	22	164	110	164	164	22
Richland Springs	1	5	3	5	5	1
Rockdale	1	10	7	10	10	1
San Angelo	9	71	47	71	71	9
Tyler	9	68	45	68	68	9
Waco	18	134	90	134	134	18

*Estimates in the first five columns are based on figures cited by Elise H. Martens in Office of Education Leaflet No. 74, *"Planning Schools for Tomorrow, Needs of ExceptionalChildren,"* Superintendent of Documents, 1944. The school census for 1945–1946 was used for specific estimates for Texas.

†The figures in the last column are for epilepsy only. Helen Leland Witmer in *Psychiatric Clinics for Children*, Commonwealth Fund, New York, 1940, page 262, presents evidence that some 5 per cent of the total population develop mental disorders some time in their lives. All such persons come through the schools as pre-neurotic or pre-psychotic individuals and as such come under the Texas law, but only a few can be recognized.

some idea of the number of children in the specified localities that they are expected to find when a survey is made to discover the individual children who come under the program. The estimates are from reputable sources as is indicated by the footnotes to the tables, but they suggest a homogeneity in the entire population that may not be borne out in any one community.

For those who wish to estimate the number of exceptional children in communities not listed, the following percentages are given: Blind and partially seeing, 0.2 per cent; deaf and hard of hearing, 1.5 per cent; orthopedic or crippling conditions, 1.0 per cent; delicate, lowered vitality, and suffering from diseases of the respiratory and vital organs, 1.5 per cent;

TABLE II

Estimated Number of Exceptional Children in Five Classifications For Which State Subsidy Is Not Provided

Area or Locality Considered	Classification				
	Mentally Retarded	Gifted	Socially Maladjusted	Latin-American Scholastics*	Economic Handicap†
Texas	25,230	25,230	31,539	260,759	19,643
Abilene	109	109	137	277	85
Alice	66	66	83	2,113	52
Austin	282	282	352	3,077	219
Austin County	43	43	54	54	34
Beaumont	134	134	168	361	104
Bridgeport	10	10	13	5	8
Brownsville	141	141	176	3,060	110
Cameron	15	15	20	143	12
Corpus Christi	355	355	444	6,837	277
Donley County	30	30	38	15	24
Fort Worth	764	764	956	1,430	595
Goose Creek	107	107	133	429	83
Jasper	16	16	21	1	13
Lubbock	162	162	203	517	126
Midway	3	3	4	3	2
Port Arthur	219	219	274	591	171
Richland Springs	6	6	8	25	5
Rockdale	13	13	16	12	10
San Angelo	94	94	118	871	73
Tyler	90	90	113	18	70
Waco	179	179	224	645	140

**World Almanac*, 1946, page 617, Children Receiving Relief Benefits in 1945.
†Little, Wilson, *Spanish-Speaking Children in Texas*, The University of Texas Press, Austin, 1944.

defective speech, 1.0 to 2.0 per cent, the mid-value 1.5 per cent was used; nervous, impossible to estimate; epilepsy, 0.2 per cent. To estimate for the five classifications for whom attention is recommended, but where service is not given special subsidy, the following percentages may be used: Mentally retarded, 2.0 per cent; gifted, 2.0 per cent; socially maladjusted, 2.5 per cent; economically handicapped, 1.6 per cent (see note to table); Spanish speaking, given by Little for each county, see footnote to Table II.

Educational Classification of Exceptional Children

When exceptional children are classified in terms of school organization to meet their needs, they may be placed in three groups. First, there are those who can attend regular classes. Second, there is the group whose deviation from the usual is so marked that they require special classes if they are to profit most from school attendance. Third, there are children for whose education the school is responsible, but who are unable to attend school at all.

The children who can attend regular classes also fall into three classifications. Some exceptional pupils require little or no special attention in the regular classes of the school. Others should have special equipment, appliances, or have attention given to their placement within the classroom. A third group can do most of their school work in regular classes but should have, in addition, individualized instruction, outside coaching, remedial or corrective work. Examples will be given in later chapters as various types of handicaps are discussed.

Special classes should be organized, where numbers will permit, for sight saving groups, lip reading groups, many crippled children whose equipment, appliances and personal needs are similar, and for those in the low vitality group who fit into a common routine of work, rest, eating, and exercise.

The organization of special classes should not be thought of as segregation. Pupils may spend part of their time in special classes and part with regular classes. They should go to special classes only for help or training that pertains to

their common problems or handicaps. Where it is impractical for those in special classes to go to other classrooms to work or recite, as it may be in the cases of some orthopedic cases, then a schedule should be worked out that brings normal children to them at least occasionally. The special education program would fall short of one of its most important outcomes if it did not result in a reciprocal acceptance and adjustment between the normal and the handicapped members of society.

Children with educable minds who have suffered crippling conditions so severe that they cannot attend school under the most favorable circumstances and some extremely delicate children must have instruction carried to their homes. This program for the homebound should, in so far as is possible, bring to the child the things he is missing by not going to school as well as the formal aspects, books and lessons. Once this problem is clearly stated, it is believed that every community will find ways to meet it. A grade at school can adopt a homebound child. Children can visit the home. Mementoes of special days and programs can be shared. Letters can be written by the children, movies, film strips and lantern slides can be shown.

Finding the Exceptional Child

Many children have handicaps that are recognizable at sight, or as soon as they attempt to move, walk, read, or speak. Others have hampering conditions that go unnoticed by teachers and even parents for years. Illustrative of this are two stories told by conscientious teachers:

Betty, in the fifth grade, had a reputation for copying the work of other pupils. She was reaching the age when it was considered cheating. One day when a test was being given the teacher spoke to Betty rather sharply for copying from her neighbor. A few minutes later she was seen doing the same thing. The teacher decided a spanking would make it more impressive and was on the point of administering it. As she approached the child she said, "Everything you need to see is on the blackboard." The child immediately replied, "I never saw anything on a blackboard in my life." It should be added that Betty, working out her own problem in her own way, always managed to sit in the back of the schoolroom.

The principal was about to paddle Bob because a teacher had reported him as being habitually inattentive, disobedient, and stubborn. He calmly gave Bob a lecture and then told him to get in position to receive his punishment. The child made no response and the principal suspecting he had not heard began saying things to him to see if he could hear ordinary conversational tones. Once on the right track it was easy to discover that Bob had a distinct hearing loss.

Two conclusions may be drawn immediately about the problem of finding the exceptional child in the school. First, no survey of the general nature indicated in a procedure such as, "Report the names of all the children who show the handicaps listed below," will reveal more than the more obvious cases who stand in need of special attention. Second, in order to discover all the handicapped pupils, every teacher must cooperate through heightened observational techniques and through thoughtful study of systematically kept observational and other factual records. In some instances it will take the combined efforts of teacher, school nurse, physician, psychiatrist, psychologist, and social worker to ferret out the areas in which a given child stands most in need of assistance.

Records and Test Data That May Prove Significant

1. *Age.* The child's age is recorded when he enters school and is carried on all his records as he progresses through the grades, but its full importance is frequently overlooked as a fact significant for discovering exceptional children. It should be thought of specifically in terms of grade placement, attainment or skills in subject matter fields, social development as judged by the child's relationships with adults and his attitude toward them and with respect to other children, oral language and speech development, and general anatomical growth. If a child deviates markedly in any way from other children of his own age group the need for special study is indicated.

2. *Vision.* Screening tests of visual acuity should be made annually to determine which children should be referred to proper agencies for correction. The observant teacher will note other symptoms that will suggest the possibility of eye disorders or visual defects requiring medical attention. Special

observations should be made of all children returning to school after extended illness.

3. *Hearing.* Rough screening of all children to determine their hearing acuity should also be made routinely. This can be done informally in the classroom or wherever the home-room teacher meets the child. Finer screening of those suspected of hearing deficiency should follow. Systematic following of these simple procedures will put many children on the way toward medical and mechanical correction of their hearing difficulties. As in the case of vision, there are numerous other physical and psychological symptoms of hearing disorders. Many instances of what has seemed to be peculiar behavior will at least be understood when hearing disorders are detected.

4. *Growth Records.* Careful measurement of height and weight at the beginning, middle, and end of the school year will aid in detecting some children with lowered vitality and in explaining a number of personality deviations.

5. *Intelligence.* When results from intelligence tests are considered along with other facts about children, they do more than indicate who are the gifted at one extreme and the mentally retarded at the other. They throw light on work habits, behavior manifestations, and other phases of adjustment. Information about the abilities of all handicapped children gives one important basis upon which to plan their educational treatment.

6. *Speech.* All children whose speech is not clear and understandable should be studied and their defects diagnosed or described up to the limits of the classroom teacher. Those with handicaps should be referred for speech correction and possibly for psychological and psychiatric study.

7. *Informal Observations and Factual Records.* Many exceptional children will be identified and their true difficulties diagnosed if teachers are given time and encouragement to jot down items of information about all their pupils as they observe them. A few possible examples are given as suggestions that may stimulate awareness on the part of teachers. The date should always be a part of the record.

a. Bill complained of headache, being tired, of pains in stomach, legs, etc.
b. Nan cried when her picture was not chosen as best by the other children. (Note all instances and circumstances of crying.)
c. Tom and Bob had a fight on the playground.
d. Tom was truant (date), explained or did not explain his absence (date).
e. May has a sty, boil, etc.
f. Bill had to be corrected for misbehavior (stated sort). He reacted to the correction as (stated).
g. Jane never talks or plays with other children. (A dated series of observations should follow.)

It is not intended that teachers burden themselves unduly with observations and records. The amount of time and effort put into it should be governed by the activity it stimulates from those particularly responsible for special education and the educational and social gains that accrue from their efforts. If their findings are checked and discussed frequently and action programs are initiated promptly their coöperation can be counted upon.

8. *Home Life.* It must not be forgotten that the most potent influences on the character, personality, and behavior of the child are in the home. Before he comes to school he has learned effective adjustment mechanisms. If the culture of the home is about the same as for a majority of the children the child will likely fit in and be accepted by the group unless his adaptive behavior or his methods for controlling his environment deviate markedly from the average. Some children are different because their homes are different. Others are different because their habits and behaviors, learned and cultivated at home, are out of place in the school situation. No teacher can fully appreciate and understand a given child until she knows where he lives, the kind of house he lives in, who and how many make up his family, the furnishings, utilities, and relative space available to the family, the child's place in the family contellation, and his ways of behaving with respect to other members of the home group. The most effective way to know the background of the child is to visit the home. Several visits may be required before the teacher

fully appreciates how the adjustment of the child at school is related to his home situation.

While it might be desirable for all teachers to visit the homes of all their pupils, it is not practical to make a blanket recommendation to this effect. It does seem reasonable, however, to urge that the homes of all exceptional children for whom special education is contemplated or provided should be visited so that mutual coöperation and understanding may be effected.

A Recommended Sequence of Special Education Activities and Services

The following outline represents a composite of two group discussions led by Dr. Elise H. Martens, U. S. Office of Education, and Dr. John J. Lee, Dean of the Graduate School, Wayne University, respectively. It is supplemented by recommendations by members of the workshop group.

1. Prepare the faculty for participation in the program. This is the responsibility of the superintendent or principal after careful planning with the person or persons working in special education.

2. Discover and record information about those who should have special attention. Assist the faculty in learning to recognize the characteristics of different types of exceptional children. The handicap of some crippled children is obvious; a hard of hearing child may be classified as stubborn or inattentive until his true difficulty becomes known; a child with a weak heart may not be recognizable at all by a non-medical observer.

3. Diagnose each child's condition, his needs, and his capacities. Expert advice from physicians, psychiatrists, psychologists, and social workers may be needed.

4. Formulate a plan for meeting the physical, emotional, and educational needs of each child. This plan will involve the child, his teachers, his parents, and possibly other consultants.

5. Motivate each child toward worthy goals within his abilities to achieve.

6. Differentiate the work of each child as is necessary. Provide such individual instruction, special coaching, or remedial work as seems necessary. Let him do all the work he can profit from with regular classes. Organize special classes where numbers justify it if pupils do not fit into usual classroom groups.

7. Give individual guidance toward the development of appropriate vocational, personal, social, and civic goals. Remember that the handicapped must make their vocational choices on the basis of being able to compete successfully with other workers.

8. Provide pre-vocational training.

9. Provide vocational training.

10. Assist in job placement.

11. Follow up the success of the young worker and continue to provide a source of help and advice to which he may return.

How Special Education Should Affect the Total School Program

The full values of the special education program will not be realized in the schools unless it results in general recognition of individual differences on the part of all the personnel or all the schools and in earnest efforts to provide for them. The principles of special education apply with equal force to the training of all children. Individual diagnosis for all pupils followed by teaching adjusted to their interests, abilities, special aptitudes, and limitations gives promise of many desirable outcomes as extra dividends on a specialized investment.

Among these outcomes that may be shared by all are the following: More attractive buildings and more comfortable furniture and equipment; improved attendance with decreased failure, discouragement, and withdrawal; guidance services broadened in scope and made more accessible to all pupils; closer relationships with the home; wider and wiser utilization of community resources for serving youth.

A great part of special education is done when a careful survey is made of the persons requiring its service. A careful survey at the beginning of a program of special education gives the basis for determining how the program is to develop,

the personnel needed to carry it through, and it gives the foundation points from which to evaluate the program. The survey, however, is not something to do with the complacent feeling that one stage is finally completed. It must be a continuing project constantly bringing to light children who have been overlooked or who have become handicapped since the first checks were made. It should be a matter of real concern and a stimulus to corrective action when it is found that some handicaps are traceable directly to school situations.

Treatment begins when those in need of it are discovered. The needs of many will be obvious and simple. Getting some children proper glasses or providing an adequate hearing aid may go a long way toward lessening their handicaps and putting them on a comparable footing with other children. Individualized help to overcome their accumulated retardation should begin to bear immediate fruits. Psychological assistance in redirecting the attitudes of such pupils should give them increased confidence for meeting and solving their own problems.

CHAPTER II

School Adjustments for the Partially Seeing Child

The usual course of action with respect to vision in a program of special education is to organize a special class or provide adjustments for the relatively small number of pupils whose vision is so poor that they are out of place in the ordinary classroom and so good that they are ineligible for training as blind persons. The point of view of this chapter is more inclusive. The group of children just referred to who need sight saving procedures should be given every consideration but the program for conserving vision and for preventing visual impairment should operate for all the pupils of the school.

This chapter is written from the point of view of general sight conservation. The materials presented include the incidence of visual disorders, suggestions for locating the children with visual defects, educational classification of children with impaired vision, specific suggestions for adapting the school to the partially seeing, a listing of causes of visual disorders along with preventive measures, and some specific suggestions to teachers and parents which includes a list of agencies that furnish assistance in dealing with problems of vision.

Incidence of Blindness and Visual Disorders Among Children

One child out of 2,000 of school age is totally or practically blind, according to estimates made by the White House Conference on Child Health and Protection.[9*] On this basis there would be approximately 600 blind children in Texas. A field study of the Child Welfare Survey in 1934, actually accounted for a total of 392. These children need the kind of education that is provided at the State School for the Blind. The main

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[9*]The superscripts given here refer to the bibliography at the end of the chapter and they are to be read as follows: 9 means reference number 9. 9-1 indicates it is the first reference to that book. In the bibliography the first reference to this book will be shown as (1) 127. This means page 127.

responsibility of the schools with reference to them is to see that they get reported to proper officials.

Going up the scale from total blindness to the point where visual acuity is described as being 20/70 (they see at 20 feet what those with normal vision see at 70 feet), and it is found that the incidence has climbed to one in 500. These are the candidates for sight saving classes. For them the use of ordinary textbooks is very difficult, painful, or impossible. There are some 2,500 children in Texas who fit into this classification.

Unfortunately many people do not feel an obligation to go beyond this point in caring for children with visual defects, but the most impressive part of the story remains to be told. Collins[4] estimates that 10 per cent of the school population have visual acuity between 20/40 and 20/70. This means that there are probably three or four children in every classroom, or 125,000 in Texas who are definitely in need of attention in the classroom and medical care. The same investigator goes on to say that another 17 per cent have minor visual impairment that interferes with their comfort and efficiency. This builds the number up to eight in the usual classroom for whom conservation and prevention measures are indicated.

Data reported by Harmon,[5] based on a study of 160,000 Texas school children corroborate and go beyond the finding of Collins. He found that 59 per cent have some discoverable sign of eye trouble or visual defect. These facts make it clear that care for the eyes of children is one of the gravest problems of the schools.

Locating Children with Visual Defects—Observation

Hathaway[6-1] mentions three types of observations the classroom teacher can make. They include observations of his behavior, observations of the condition or appearance of his eyes, and attention to his complaints that may refer to the use of his eyes.

Under behavior symptoms she lists the following nine items:

1. Walks with extreme caution, looks closely or feels with the foot for step up or a step down or for small obstructions; trips or stumbles frequently.

2. Holds reading material or other types of fine visual work close to the eyes or at a greater distance from the eyes than is normal.

3. Attempts to brush away blur; rubs eyes frequently; frowns; distorts face when using eyes for either distant work or close work.

4. Shuts or covers one eye; tilts head to one side or thrusts it forward.

5. Fails to see distant objects readily visible to others.

6. Is unduly sensitive to light.

7. Is unable to distinguish colors.

8. Is unable to estimate accurately locations of objects, hence frequently runs into them or fails to place objects properly.

9. Fails to see objects not directly within the line of vision, which are clearly visible to the average person, while the eyes are fixed looking straight ahead.

Eye trouble is indicated if the eyelids are red-rimmed, swollen, or crusted; if the child has frequent sties; if his eyes are watery and red; if his eyes are crossed; if they discharge pus; and if they are bloodshot.

The complaints she mentions that may be associated with eye strain are dizziness, headache, nausea, pain in the eyes, blurring of letters or objects, double vision, and burning or itching eyelids.

The teacher who reviews these symptoms occasionally and adds others to the list as she coöperates with school nurses and physicians will heighten her capacity for observation and will find many children with eye difficulties who otherwise would be overlooked.

Locating Children with Visual Defects—Testing

There are many children with low visual acuity or with eye defects that escape notice until careful testing is done. Many schools do this systematically at frequent intervals. Other schools lacking personnel who have visual testing as part of their responsibilities or assigned duties do it irregularly, haphazardly, or not at all. For schools that are initiating an

eye testing program it is recommended that the planning be done with a physician or eye specialist who checks and explains the equipment to the teachers and helps them to work out procedures for getting reliable results. Snellen charts with lines of letters may be used for children who can read. For those who cannot read the symbol E charts should be used.*

To locate children with astigmatic conditions a card with concentric circles is used. If it seems desirable for the teacher to test for astigmatism, she should get instructions from the eye specialist and perhaps borrow the materials from him or get him to recommend a place to purchase them.

More elaborate screening can be done with the telebinocular, a piece of apparatus developed by Betts.[3] His manual should be studied carefully before an attempt is made to use the telebinocular. Again it is recommended that the eye specialist be consulted before serious testing is done.

All testing or visual screening by the teacher is preliminary to final testing by the eye specialist. The teacher renders this service in order to find the children who need medical treatment. When she finds a child that she feels is in need of further help, she reports him to the parents with the recommendation that the family doctor or eye specialist see the child. She makes her records and observations available to the doctor if he wishes them.

Children who wear glasses must not be overlooked on the assumption that their difficulties have been permanently corrected. They may not be wearing their glasses correctly or they may need new fittings. Sometimes it is desirable to visit in a child's home in order to get the needed coöperation. This may be particularly necessary when he first has glasses prescribed.

Educational Classification and Instruction

In order to give a brief summary on matters relating to the vision of school children, Table III has been prepared. The

*Snellen charts may be secured at cost from the National Society for the Prevention of Blindness, 50 West Fiftieth Street, New York. They may also be secured from the Superintendent of Documents, Washington, D.C.

emphasis, as is readily seen, is on the conservation and improvement of vision of all children.

TABLE III

Summary of Treatment, Services, Curriculum, and Equipment for Pupils with Levels of Visual Acuity

School and Vision Range	Classes, Treatment and Services	Curriculum and Equipment
Blind School 20/200 and less	A few in large city schools. Occasional one in any school. Provide readers.	Braille, typewriting, use of dictophone. Vocation for blind. Talking books. Seeing-Eye dog.
Regular School 20/70 to 20/200 Progressive myopia Diseases of the eye that cause irritation Children referred by oculist	Sight saving for close work, regular classes for oral recitation and activities not involving close eye work. Small schools, individual help for close eye work. Special seating to avoid glare and make blackboard visible. Teacher reads aloud, gives oral instruction to reduce reading. Pupils read aloud, family encouraged to read aloud at home. Adequate light in all parts of room and freedom from glare. Furniture faced so line of vision is at least 50° from window. Vision testing at regular intervals, always after complete recovery from illness.	Learns to read by sight, clear type, 24-point. Learns typewriting, keys covered, primer or bulletin type. Figures and writes longhand with pens and pencils that make heavy lines. Uses unglazed paper. Reads for information only, radio and phonograph for pleasure. Writes on blackboard at eye level with soft crayons. Uses maps with boundaries marked heavily in India ink. Gets guidance toward hobbies that do not involve eye strain, vocation in which he can compete successfully with those with normal vision. Needs desks with adjustable non-glare tops.
Regular school 20/40 to 20/70 Muscular imbalance Astigmatism	Regular classes. Light, furniture, and testing as for sight saving classes. Observe for symptoms of eye strain. Vision testing at regular intervals.	No special curriculum or equipment, except to discourage carrying too many subjects at one time that involve reading, if symptoms of eye strain appear.
All schools 20/20 to blind	All classes. Adequate light and freedom from glare. Vision testing at regular intervals.	Make eye hygiene and a knowledge of the diseases that cause blindness or that impair vision a definite part of the curriculum.

Causes of Blindness and Impaired Vision

Estimates given by Baker[1-1] indicate that five out of every nine cases of blindness are caused by disease, and one case out of six is caused by accidents. Hereditary causes, according to Scheidemann[3] account for one case in nine.

Best[2] gives a list of infectious diseases that must be considered seriously because of their possible effect on the eyes. They are measles, scarlet fever, mumps, typhoid fever, smallpox, diphtheria, meningitis, and tuberculosis. Parents need to be reminded of this and instructed how to care for the vision of their children during the danger period.

He also mentions special diseases of the eyes that are almost sure to cause impairment of vision and frequently blindness. These diseases are (1) ophthalmia neonatorum and infections from venereal parents; (2) trachoma, conjuctivitis, and keratitis, largely surface inflammations; (3) glaucoma, a condition of the inner eyeball which results in opaqueness; and (4) cataract, a disease that causes the crystalline lens to be opaque so that light cannot pass through it.

Other diseases that cause eye complications are hypertension (high blood pressure), nephritis (Brights' disease), diabetes, and focal infections.[4-1]

Hathaway,[6-2] Hilleboe,[7] and Baker[1-2] list other eye conditions that result in defective vision such as; (1) myopia, nearsightedness which is usually a progressive condition affecting older children in increasing numbers, (2) hyperopia, farsightedness which is most common in the earlier ages, (3) astigmatism, (4) scars on the cornea, (5) disease of the optic nerve, (6) cross eyes or strabismus, (7) ptosis of the eyelids, and (8) lack of fusion.

Prevention of Blindness and Visual Impairment

Most of the blindness and visual impairment resulting from disease or from accidents is preventable. Disease comes to those who violate the laws of health and sanitation and accidents occur to the careless. Vitalized courses in health, sanitation, and safety that reach both children and parents should produce some reduction in the incidence of all of them. Some

diseases are being eradicated by medical science and successful inoculations are possible against others.

Better school lighting, including better use of natural light, will do much to eliminate eye strain. Equipment and furniture that is properly made and scientifically arranged will reduce eye strain still further.

A final preventive measure is to find all the children with correctible reduction in vision at the earliest period possible. The same may be said for other eye disorders that may lead to impairment of vision.

Specific Reminders to Teachers and Parents

The following points with reference to vision should be kept in mind by teachers and parents:

1. Poor lighting causes eye-strain, produces nervous exhaustion, lowers one's working efficiency, and may seriously affect posture. Are children being permitted or are they required to work under poor lighting?

2. Good lighting makes for improved morale, less nervous strain from long periods of work, and better work at a higher speed. Are there any dark corners in the otherwise well-lighted rooms?

3. Any disease of exhausting condition makes the eyes more susceptible to strain. Immediately after recovery from illness is no time to press a child to catch up on his school work.

4. Any epidemic that occurs in the school is an occasion for reminding pupils and their parents of possible effects on vision. The swarms of gnats that infest some areas periodically also furnish occasions for reviewing our knowledge of eye hygiene and sanitation.

5. Visual difficulties manifest themselves in a variety of ways including poor posture, troublesome behavior, apathy with respect to school work, and through such symptoms as headaches, indigestion, nervousness, and nausea. If there is something wrong with a child and no reason can be assigned, a thorough check on his vision or the lighting of the school room may give the answer. All children should be tested sev-

eral times during their twelve years in the public school and proper notations should be made on their permanent records.

6. The prevention of blindness or injury to the eyes deserves an important place in the safety curriculum. Every community has among its residents numbers of persons who are blind, one-eyed, or who have partial loss of vision as a result of accidents. The true stories of what happened to them should constitute practical teaching materials with real interest value.

7. There are many excellent films and film-strips available that are interesting and instructive for pupils, parents, and teachers.

8. Many organizations are interested in the correction of visual difficulties, the adjustment of those with impaired vision, and in research to improve preventive measures and treatment. The organizations listed below offer services that are available upon request. A partial list of services is given with the name and address of each agency.

A. State Commission for the Blind.
Lon Alsup, Executive Secretary
Land Office Building
Austin, Texas

(1) Pays for eye examinations, (2) Accepts children from birth to 16 years of age, (3) Buys glasses, (4) Pays for hospitalization, if necessary.

B. The National Society for the Prevention of Blindness.
Mrs. Winifred Hathaway, Associate Director
1790 Broadway
New York 19, N. Y.

(1) Chief aim is to give guidance to all types of agencies in any phase of the prevention program.

C. Lions International
Apply to nearest local club.

(1) Primary interest to help children with visual defects by supplying glasses and medical treatment, (2) Also gives aid to other handicapped children.

D. State Department of Health.
Austin, Texas

(1) Consultation service and assistance in testing vision and in planning and providing proper lighting.

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CHAPTER III

The Hard of Hearing School Child

Four or five children in the average class have some degree of hearing impairment.* Baker[1-1] reports figures that indicate that 14 per cent of the school population, approximately 3,000,000 children, have defective hearing. However, hearing losses are hard to detect. Consequently it is possible for children with as much as a 40 per cent hearing loss to go unnoticed and become badly maladjusted before anything is done about it.

Family doctors and pediatricians, according to Hughson and Thompson,[12] often attribute retardation of speech development in pre-school children and inadequate achievement in primary school children to an inherent mental retardation rather than defective hearing. This faulty diagnosis becomes increasingly widespread because testing of hearing is left out of routine physical examinations. In 1926, Newhart[15] pointed out this omission to the American Medical Association and assigned the complexity of the ear as the reason.

All investigators agree that children with impaired hearing have difficulty in their school work in direct relationship to the amount of their hearing loss. However, with a little special help from the teacher, most of these children will be able to keep up with their classes and become self supporting, well-adjusted adults.

This chapter has been planned primarily as a guide to help special education teachers, regular classroom teachers, and parents of children with deficient hearing to: (1) recognize symptoms and behaviors which may indicate hearing impairment, (2) conduct screening tests to indicate which child should have a complete examination by a competent ear specialist, (3) practice efficient teaching methods and procedures which will aid the child with deficient hearing, (4) guide the child in making the proper social and vocational

*This will vary from one community to another. The better residential areas will drop below this figure, the poorer areas will run higher.

adjustments, and (5) promote preventive measures for the conservation of hearing.

According to Baker, "The chief distinction between the hard-of-hearing and deaf lies in whether or not the individual has made use of his reduced hearing in learning to speak or as a means of communication."

This chapter concerns the adjustment of the hard-of-hearing child to the normal school program and, therefore, is confined to the problems of the hard-of-hearing.

Discovering the Child with Hearing Impairment

There are numerous tests for diagnosing hearing loss. Baker[1-3] lists the following characteristics as possible symptoms of defective hearing:

1. *Physical Symptoms.* Failure to respond, says "What?" constantly, cups his hand to his ear, moves closer, has peculiar posture, tilts head at unusual angles to get better sounds, mouth breathing, running ear, earaches, and noises in head.

2. *Speech Symptoms.* Defects in speech, peculiar voice often high pitched and without expression, avoids talking to people, lack of adequate flow of language.

3. *School Symptoms.* Poor general scholarship, poor oral work, generally slow and inaccurate in schoolwork. Particularly poor in spelling where dictation methods are used, puts his own incorrect interpretation on many questions and topics as substitute for complete hearing and understanding.

4. *Social Symptoms.* Listless, uninterested in any group, sensitive, aloof, suspicious, hard to accept as a cordial acquaintance.

In addition to making these observations it would be well to follow the group testing procedure set up by the State Department of Special Education as a guide in seating the children in the classroom. Those who make sufficient errors to indicate deficient hearing should be seated near the front of the room. A further check can be made by using a low conversational voice in number or word games. After these three screening devices have been used the teacher will have singled out a number of children she suspects of having less than

perfect hearing. An individual check can be made by following the Individual Whisper Test prescribed by the War Department in "Standards of Physical Examination during Mobilization" (Jan. 22, 1943) as reported by Goldman.

> To determine the acuity of hearing, place the [child] facing at right angles to the [examiner], 15 feet distant with ear to be tested toward the [examiner]. If the [child] cannot hear the words at 15 feet, the [examiner] will approach foot by foot using the same whisper until the words are correctly repeated. Examine each ear separately, closing the other ear (with a plug of cotton or moistened finger) . . . The [examiner] will use a whispered voice produced by speaking with lungs in a complete state of exhalation so as to assure as great uniformity of sound output as possible. . . . Use will be made of numerals, names of places, or other words and sentences until the condition of the [child's] hearing is evident. The acuity of hearing will be expressed as a fraction, the numerator of which is the distance in feet at which the words are heard by the normal ear; thus 15/15 indicates normal hearing, 10/15 partial hearing of a degree indicated by the fraction, that is the [child] hears at 10 feet distant the words the normal ear hears at 15 feet.[9]

If this test has been given under controlled conditions and in a quiet room, one may suppose that a score of 10/15 would indicate a hearing loss of about 30 per cent. A child is considered to need special attention if a hearing loss is as much as 15 per cent. One is cautioned not to judge the severity of the handicap solely on the basis of such a test but

> . . . it appears highly desirable that children with borderline or incipient impairments receive at least a brief preliminary otolaryngologic examination so that all referrals for treatment will be based on consideration of (1) the results of hearing tests, (2) a medical history and (3) an otolaryngologic examination.[16]

The informal methods of testing hearing serve as the roughest type of screening. Only the individual whisper test is rated as having any real merit. Unless a testing technician is highly trained the results are difficult to compute. Further the individual test is too slow a process to screen an entire school system. The matter of accurate testing has been the greatest factor in the delay of hearing conservation. In 1926 the 4-A or phonograph audiometer was invented. The advent of this instrument has already been responsible for saving

thousands of children from the agonies of impaired hearing, either through medical correction or an educational program adapted to their needs.

With 4-A audiometer 40 children can be tested at one time. The instrument is portable and is simple enough so that with a little practice anyone can operate it. Newhart[15] said in 1926, and his prolific writings up until his death in 1945 reiterated again and again, that there is no excuse for not testing every entering school child and to continue to test each child every two years or oftener if diseases warrant it. Since 1926 testing school children with the 4-A audiometer has become more widespread. Bequette[2] reported in 1946 that such testing is required by law in 20 states. The wisdom of the general testing with a follow-up medical program has been demonstrated by students which bear out Newhart's statement that 80 per cent of all cases of impaired hearing can be prevented or arrested if medical attention is given early enough.[17]

Newhart and Reger[16] have compiled the findings of the Committee on the Conservation of Hearing of the American Academy of Ophthalmology and Otolaryngology.

> Hearing tests alone do not constitute an adequate conservation of hearing program. This fact cannot be emphasized too forcibly. The tests only reveal the identity of the children in need of special medical and educational attention. In order to be effective and not merely a waste of time, effort and money, conservation of hearing programs must have the hearty coöperation of trained audiometer technicians, local physicians and local school personnel. . . .
>
> It is axiomatic that the earlier treatment can be begun the better the chance that it will be effective. For this reason it is necessary that hearing of children be tested as soon after entering school as is possible and that slight hearing losses be regarded as potentially incipient impairments until proved otherwise. In spite of the fact that more time is required to test the younger children and results are . . . more difficult to evaluate . . . most authorities stress the advisability . . . of testing the entering grades.

For those who wish to start a testing program, the Extension Division of The University of Texas has a 4-A audiometer available for limited periods. It is highly recommended that

one study the *Syllabus of Audiometric Procedures*[16] and become familiar with the test to make the best use of the instrument when it arrives.

Ideally a school testing program should include the discrete frequency audiometer test which tests the hearing at various pitch frequencies. The 4-A audiometer tells us the child does not hear but the discrete frequency audiometer tells what he does not hear. This individual test will probably be given by the ear specialist for it is important to him in diagnosing the type of deafness he is dealing with. Crowe states that

> . . . in childhood when hearing impairment is just beginning, all types of middle and inner ear lesions, with the possible exception of otosclerosis, have one symptom in common: hearing is more impaired for high than for low tones. Audiometric pattern with high frequency doesn't always indicate an inner ear or nerve lesion[5]. . . .

Newhart and Reger[16] include in their syllabus all materials needed to make the testing program a success. The assistance of the school nurse is invaluable in this program to see that the parents follow up the test with a trip to the doctor.

Diagnosis

When the doctor has given his diagnosis of the involvement of the hearing apparatus and has treated the ear (see causes and prevention) he will probably prescribe one of the following: Recheck on those whose impairment seems to have been cleared up through treatment—speech correction when speech is defective; lip-reading for those who have a loss of 20 or more decibels; hearing aid for those who have a loss of from 35 to 60 decibels. For a greater loss the child should be educated in a special school for the deaf.

The otologist may write a prescription for a hearing aid based on the findings of the audiometric examination but it is highly recommended that the selection of a hearing aid be chosen in the last analysis by the trial and error method to find one that is best adapted to the individual.*

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*See Davis, H., C. V. Judgins, R. J. Marquis, et al.: *The Selection of Hearing Aids.* Laryngoscope, 56:3, pp. 85–115 and 56:4, pp. 135–163. This is a study on the comparative performances of various makes of instruments.

Impaired hearing is a great burden for children, and if it is unrecognized and untreated it becomes a common cause of misunderstanding and maladjustment. It is the responsibility of the teacher to a large degree, to the doctor to an even greater degree, to guide the parent in the understanding of the relationship of hearing impairment to learning. There has been a stigma attached to deafness that has made people with impaired hearing, young and old, conceal their handicap rather than take measures to correct it as they would do with impaired vision. Hearing aids must become as acceptable as glasses; lip-reading as acceptable as corrective physical exercise. The problem cannot be properly handled until it is brought out in the light.

In order to understand the problem of the hard-of-hearing child, it must be remembered that the normal hearing child acquires his language and vocabulary through his hearing. Until he goes to school there are comparatively few things that have to be taught to him directly. He gives back what he hears. The language he has heard is the language he reads with. It is not surprising then that all studies show that the hard-of-hearing child is retarded on the average one year in school. It is also to be expected that when he is given an intelligence or achievement test along with the hearing children that he is going to show mental retardation. In view of this Baker[1-4] avoids language tests for the hard-of-hearing children in Detroit and has constructed a non-language intelligence test for them.

Socially the hard-of-hearing child frequently gets into great difficulty. Corey reports that of the 265 most serious behavior problems referred to him, 13.2 of these cases had auditory defects. He states further: "Defective hearing in children has an important bearing on juvenile delinquency. This is especially true if the disability has existed from an early age and if it is unrecognized by parents and teachers. . . ."[4]

The child with impaired hearing had the same start that every other child had. If he is much different by the time he gets to school, it is not his fault. He must be found, treated,

understood and educated to equip him to meet his needs and give him equal opportunity.

Educational Program

The education of the hard of hearing should begin in the home. As the special education program develops, census data will warn the school in advance that certain children may ultimately come to school with deficient hearing. The home should be visited in advance and a coöperative program begun.

The following general suggestions for parents and teachers of the hard-of-hearing child were prepared by Gardner and Larsen and appeared in *The Lip Reader*.[8]

Suggestions to Parents of Pre-School Hard-of-Hearing Children

When the doctors say that your child is hard of hearing don't give up in despair; begin at once to make the most of his home training by carrying out the following suggestions:

1. Praise every effort of the child to talk whether you can understand it or not.
2. Be sure to get the child's attention by tapping your foot, or clapping your hands before giving a command or speaking to him.
3. Talk to him a great deal, even more than you would do to a hearing child.
    a. Talk naturally; don't exaggerate or overemphasize.
    b. Have the child look at your mouth.
    c. Don't point to anything while you are talking, as his eyes can't be on your mouth and the object at the same time.
    d. Be sure the lighting is good. Don't have the child face the light. Be sure there are no shadows on your face. Big hats and mustaches make it difficult to read lips.
4. Instead of raising your voice when a child misunderstands, say it in a different way. The chances are the words you are using are invisible. For example, 'Are your folks at home?' The second time say, 'Are your parents at home?'

The third time say, 'Are your mother and father in the house?'

5. Make the most of every experience in order to stimulate his learning. Talk to him for instance, when you are going shopping. Tell him in advance, 'We are going to the store. I am going to buy some apples and some eggs,' etc. At the store say very clearly, 'I want some apples. Here is the money,' etc. When you get home, say 'Here are the apples. Here are the eggs,' as you open each package. The child will learn the meaning of the words, egg, apple, store, etc., unconsciously. He will be able to lip read them and understand what they mean.

6. Hold the child and sing to him often. He will become conscious of the vibrations. Also provide musical toys, drums, bells, horns and encourage him to listen to the radio. If your child has any hearing at all, make a practice of spending some time each day speaking names of familiar objects into his ear so that he will have a chance to make use of and stimulate whatever hearing he has.

7. You can't have too many picture books, particularly of the object type, like A.B.C. books. Look at the book together, having the child look at the picture then at your mouth while you say a word. Again he is learning lip reading and to understand.

8. Be consistent in your discipline. It is hard enough for the child to learn one response to a command without confusing him by expecting different responses at different times to the same command.

9. Do everything possible to establish the fact that he has nothing to fear when you are with him.

10. Don't force the child into new adventures or activities without explaining first as best you can what is to be expected. For instance, a visit to the dentist. Don't make believe it is going to be a pleasant experience unless you have tipped off your dentist so he will make it such on the first visit. Don't trick the child into doing anything as you must avoid anything that will make him lose his confidence in you as a friend and guide.

11. Your child must learn that he is just the member of a family or group; that others as well as he have rights. Do not permit his handicap to interfere with his normal development as a member of the family. He must be treated as a normal member of any group, at home, in school or at play.

12. Don't forget that the hard-of-hearing child has as hard a time telling you what he wants as you do telling him what you want. Therefore, he is apt to lose patience with you as you are to become impatient with him. You can't have too much patience in trying to anticipate his wants.

Suggestions to Parents of the Hard-of-Hearing School Child

1. Try to obtain lip reading lessons as soon as possible.

2. Insist that he associate with other hearing children every day.

3. Encourage the child to participate in group activities such as Scouts, church leagues, etc.

4. Encourage the child to read a great deal in all fields in order to develop a broad background and vocabulary.

5. Don't let the child become discouraged but inspire him to keep trying. Lip reading ability improves with practice, reading increases his interests, participating in group activities increases his confidence in himself and well-chosen responsibilities successfully met build up a feeling of usefulness and self-respect.

Suggestions to Teachers of Hard-of-Hearing Children

1. Seat the child to his best advantage. Let him sit where he feels he can read your lips and follow the classroom procedure the easiest. For example, the better ear should be toward the teacher and the class.

2. Speak naturally. Don't exaggerate or overemphasize.

3. Keep your hands and books down from your face while speaking.

4. Don't stand with your back to the window.

5. Don't talk while writing on the blackboard.

6. Stand still and in the place in the room where shadows are least likely to be on the face.

7. Lip stick helps emphasize mouth contour and makes lip reading easier.

8. When dictating problems to pronouncing spelling words, choose *one* place to stand and don't walk around while talking. Always come back to the same place before pronouncing another word.

9. If every word in the spelling lesson were used in a sentence, it would help greatly. Every teacher illustrates words like 'meat' to show the child which word is meant. Few teachers realize that, for instance, there are thirteen words that look exactly like 'bean.' And the only way the hard-of-hearing child can determine which word is being spoken is by the context of the sentence.

10. Whenever reports are being given, have the children stand in front of the class so the hard-of-hearing child can see the child's mouth. During seat recitations let hard-of-hearing children turn around and face the class.

11. Some find that if they tell the child in advance what unit of activity will be studied next and he has a chance to read ahead on the subject, such as Indian life, he will be able to follow along much better, because he will be more familiar with the vocabulary.

12. Take particular pains to help the child learn to use the dictionary pronunciation key, etc., so that he can learn to help himself.

13. Be sure you have his attention as you start to give assignments or announcements.

14. Never lose sight of the fact that the hard-of-hearing child gets fatigued sooner than other children, as he is constantly straining to perceive with his eyes not only what is written but also what is being said.

15. Many children hear better on some days than others, so don't always blame inattention on the child's desire.

16. Encourage the child to participate in musical activities. While it may be unpleasant to hear him sing, his doing so stimulates his residual hearing and adds rhythm to his speech.

17. Encourage and promote active participation in social functions and in all school activities.

18. Try to have the child accept his handicap as a challenge and make the most of it.

Lip Reading

Lip reading is a method of understanding and communication based upon reading the lips of one who is speaking. It has been used for many years in certain schools for the deaf, with very satisfactory results. More recently it has been used with the hard-of-hearing who make rapid progress by combining some hearing with the visual impressions of lip reading. In view of these successes a few school systems give part-time instruction in lip reading to children with milder hearing defects who are enrolled in regular grades.[1-5]

The teacher should be aware of the many difficulties which face the hard-of-hearing child when learning lip reading. He is

> . . . required to learn a new alphabet with various peculiarities. Spoken letters are not stationary as in written or printed works. They move. Therefore the single letters . . . usually are not visually recognizable in speech. Also some mouth positions are ambiguous. For instance, closure of the lips may mean *p*, *b*, or *m;* touching the upper incisors with the tip of the tongue may produce *t*, *d*, or *n;* touching the upper incisors with the lower lip may form *f* or *v*, and, some letters are not seen or only seen by chance as *k*, *g*, or *ng*.

Lip reading proper should be taught by the teacher who has had training and clinical experience in the teaching of lip reading; but, in many cases where the hearing loss is not too greatly pronounced, the classroom teacher can offer sufficient training by following the suggestions to teachers of hard-of-hearing children preceding the section on lip reading.

A bibliography of principal lip reading methods can be obtained by writing the Bureau of Extension Teaching, Extension Division, Austin 12, Texas.

Speech Correction and Acoustic Training

Children with hearing impairment very commonly have speech defects. Van Riper states,

> Children who have lost their hearing as a result of illness or accident frequently lose intelligible speech to such a degree that many of the speech sounds are never regained . . . there are types of deafness which

permit the child to hear certain pitches but not others. So-called regional deafness, of which high-frequency deafness may serve as an example, can produce distortions of speech so peculiar that the child's parents are conviced of a lack of intelligence.[19]

In the case of high frequency deafness, the child in all likelihood will not be able to hear sounds such as *s*, *z*, *f*, *v*, and *th*. Vowels are easier to hear than consonants.

The child should be under the direction of a speech correctionist, but all teachers should share the responsibility of the speech program.

The child should be encouraged to speak at every opportunity. Teachers and parents who know his vocabulary should insist that he use it correctly, otherwise his speech may deteriorate and become incomprehensible.

Phonograph recordings are often helpful. A recording should be made at the beginning and another at the end of the year to show progress in speech.

Along with lip reading and speech correction comes acoustic training in the education and rehabilitation of the hard-of-hearing child. Like lip reading the acoustic method requires special training in techniques and procedures. However, a few general principles may be noted as being of value to the classroom teacher and teacher of special education.

Goldstein defined acoustic training as ". . . stimulation or education of the hearing mechanism and its associated sense organs by sound vibration or any sonorous instrument."[11]

Daily training is given in instrumental stimulation and acoustic exercises to develop the differentiation of sound-frequencies.

The child is taught first to respond to sounds of different pitch levels, through instrumental stimulation (piano, harmonica, organ, etc.). Later he is given exercises using the voice and connected speech.

Sound vibrations may be sensed by tactile impression, because the sense of hearing, like the other sense organs, is also a tactile sense.

Hearing improvement comes in mental appreciation in the hearing centers of the brain and not because of any improve-

ment in the organ of hearing or regrowth of injured or damaged nerves.

Visual Aids

Motion pictures and other visual aids can be very effective in teaching the hard-of-hearing child. Words and names can be taught by applying them to the objects they symbolize. The teacher can use desk, pencil, flower, radio or some other object to teach the word to the child. When it is possible the teacher should take the child to see the object, otherwise she can show pictures of these objects in illustrated books.

Many children with hearing deficiences need glasses also. They need to work in adequately lighted rooms so that they can see well to compensate for their lack of hearing.

Causes, Prevention and Medical Treatment of Hearing Impairment

Goldstein[10] places the causes of hearing impairment in two classifications, congenital and adventitious. Congenital deafness or deafness existing from birth may be either biologic or the result of the development of an imperfect embryo, or pathologic-deafness brought about through the influence of such factors as syphilis, rickets, tuberculosis or consanguinity of marriage.

Moore[14] declares that in order to prevent congenital defects youth must be given the information they need concerning parenthood. This is the surest means of prevention and it is the right of youth to know the facts and the duty of experience to impart what is known.

Adventitious deafness is deafness acquired some time in postnatal life, either from etiological or mechanical factors or through local infections.

In the case of adventitious hearing loss, early discovery and treatment can often prevent a permanent hearing disability. Regular periodic examinations of the school and pre-school child, hearing surveys by the school nurse and parent education can do much to diminish the percentage of children suffering

from a hearing loss. Parents and teachers alike can instruct children in the important *don'ts* of ear hygiene:

1. Don't put objects of any kind in the ear.
2. Don't get water in mouth and ears while swimming or use cotton in ears while in water.
3. Don't expose ears to violent sounds.
4. Don't try to remove plugs of wax. See a doctor.
5. Don't use strong nose drops except on advice of physician.
6. Avoid blows on the ears.
7. Don't put oil in ear except on advice of physician.
8. Don't use unprescribed nose douches.
9. Don't expose yourself to colds and draughts.
10. Don't dose yourself with aspirin or other drugs to cure a cold.
11. Don't neglect your teeth.

A detailed list of the causes of hearing impairment with the per cent of deafness traceable to each cause is given by Best.[3-1] This book should be consulted by the teacher who desires specific information.

Damage to the ear may result in the wasting of the membrane, scarring of tissues, occlusion or narrowing of passageways of the ear by inflammation and other means, or the eroding or wasting of the bones of the ear.

The organ of hearing, according to Best,[3-2] provides a fertile field for affections arising elsewhere than the ear. Nose and throat affections are carried to the ear via the Eustachian tube. This tube or passage leads directly from the nose and throat to the middle ear.

Thus causes for potential deafness lie in diseased tonsils and adenoids, colds, sinus infections, nose and throat inflammations and like affections.

Removal of tonsils and adenoids has long been a supposedly routine treatment for children with frequently recurring colds and ear infections. The medical profession has become more conservative in recent years. Wisehart[20] quoted Bell as stating that the tonsils undoubtedly play a large part in the defense of the respiratory tract of the young child against infection,

and removal while their function is still healthy will only weaken this defense. He gives two indications for removal of tonsils in children: (1) Hypertrophy of the tonsils to the degree that it interferes with swallowing, (2) chronic infection resulting in repeated autoinfection of the respiratory tract or in the child becoming a carrier of pathogenic organisms which cannot be eliminated by other means. Wisehart[20] reports that Crowe has found that localized treatment often makes removal of the tonsils and adenoids unnecessary.

It is vital also to recognize the importance of a cold or a sore throat. Means says

> Hearing cannot be normal in the presence of an obstructed or a 'running' nose. Prevent all childhood diseases; treat all respiratory diseases seriously; never neglect an earache or a discharging ear. These are the 'Stop and Look' signs that allow you to hear.[13-1]

Tickle states, "Proper care of the initial head cold can do much to prevent sinusitis from occurring."[18-1]

Every teacher should make a careful explanation of the proper way to blow the nose. She should further see that this method is put into practice.

It is described by Tickle as follows: "Blow the nose gently, without closing both nostrils at the same time. Hold the handkerchief loosely over the nose and blow very easily. It is better to snuff the mucous to the back of the throat and spit it out, whenever this is possible."[18-2]

The diseases which constitute the greatest danger to the ear are the contagious and infectious diseases; therefore every child should receive immunization, and quarantine measures should be strictly enforced. Diseases, such as measles, scarlet fever and smallpox, are the main causes of deafness, bringing about suppurative otitis media or the abcessed condition of the middle ear.

In acute otitis media, the middle ear fills with pus causing a distension of the tympanic membrane. The pressure on the drum membrane causes extreme pain and unless the infection can be cut down immediately by use of such drugs as penicillin or the sulfonamide compounds it is necessary

to lance the ear to permit drainage.[6] This is very important because if the membrane is allowed to rupture, drainage is incomplete and the irregular opening may not heal properly. Such scar tissue impairs the ability of the drum membrane to pick up the sound vibrations. Fox[6] believes every effort should be made to clear up the condition without lancing the ear drum, but if in doubt it is better to err on the side of lancing.

Meningitis involves the auditory nerve and deafness resulting from it is likely to be total.

Every school health program should include hearing tests with medical follow-ups. This is a potent weapon in preventing many handicaps, but is especially applicable in the case of deafness.

Means[13-2] states that 50 per cent of adults suffer more or less with deafness and that 60 to 80 per cent of this could have been avoided by early preventive measures.

It has been found that in one city is costs twelve cents to test the hearing of each child, while it costs sixty dollars for a child to repeat his grade. To save school dollars is in itself worthwhile. But to save a child's hearing is a privilege and responsibility no one dare ignore.

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CHAPTER IV

The Child With an Orthopedic Impairment

The crippled children of Texas have been given a new lease on life. Equalized educational opportunities have been promised them. Is this just another promise, or will it be carried to the fulfillment that the Legislature and the State Department of Education have envisaged and expected? The answer must come from the administrators and teachers from all the schools in the state, just as it has already come from Austin, Corpus Christi, Dallas, Houston, Lubbock, Port Arthur, San Antonio, and Waco. These cities and perhaps others have given an unqualified affirmative that the promise will be fulfilled.

It is hoped that the materials of this chapter will pass along the challenge its writers have felt, and personalize it for administrator and teacher who reads it. If this hope is realized, the time is not far distant when no crippled child with an educable mind will have reason to feel neglected because he does not fit into the educational program or feel dejected because he cannot see some useful place in society.

As the presentation goes forward, an earnest attempt will be made to answer the following questions: What is an orthopedic handicap? How can the crippled child fit into the school program? How is he recognized? How many crippled children are there and what is being done for them in the schools? What causes the handicaps? What are the crippled child's specific needs and how may they be met? What staff is required? What can the regular classroom teacher do for him? Finally, what preventive steps can be taken to keep children from becoming crippled?

Definition and Educational Classification

A child is crippled if he does not have normal functions of the bones, muscles, or joints for education or for work.[44; 70-1; 63; 41-1] He may be crippled because of deformed, paralyzed, lost or injured members of his skeletal system.[41-2]

For educational purposes, orthopedically crippled children with normal intelligence may be classified into four groups:[31]

1. Those who are able to attend regular classes with normal children, which includes all children with mild acquired or congenital deformities who are able to participate to some extent in most of the regular school activities. There may be children in regular classes in need of special instruction to overcome related handicaps such as speech defects.

2. Those who because of the nature of their impairment are unable to attend regular classes for normal children with safety and profit during the period of their education.[31-1] Thus, more specialized care and treatment can be provided.

3. Those who are confined to hospitals for an extended period of time and are under the immediate care of the medical staff including physicians, nurses, physiotherapists and occupational therapists, and hospital teachers.

4. Those who are confined to their beds or are unable to attend any school because of inability to control the regular processes of life. Physically, they are too helpless to be transported and educated in a special class.[29-1]

Discovering the Crippled Child

The teacher of special education should survey the community to find the actual figures as compared with estimates of the number of crippled children in Texas. The coördination of reports from all organizations, agencies and clinics and the maintenance of a central register of crippled children are necessary means of locating crippled children. Crippled children in the regular classrooms are usually quite easily identified in the routine physical examinations. Defects such as spinal curvatures may be detected by the physical education teacher or the school nurse. Any defects or abnormality found by the classroom teacher should be referred to the school nurse who should advise the child's parents to see the family physician or an orthopedic specialist. In addition to these data, informative newspaper stories and local surveys, by means of questionnaires sent out through school children, may serve as other means of discovering crippled children.

Incidence of Crippled Children

State registers contained the names of 363,696 crippled children as of December 31, 1943.[68] Lenroot[46] reported 12,106 Texas crippled children on the state register (1940 census) with 4.7 crippled children per 1000 population under 21 years of age. The Texas Child Welfare Survey of 1935[65] found in a house-to-house canvass that 10,140 Texas children under twenty-two years of age were orthopedic cripples. (Not all of the cases reported were diagnosed.) Of this number 9,367 were under nineteen years of age, 82.3 per cent were Anglo-American, 5.7 per cent were Latin-American, and 12.0 per cent were Negro. There were 5,542 boys and 3,825 girls.

Tables 4 through 8 on Incidence on the following pages show (1) the distribution by grade level of crippled children enrolled in special schools and classes in city school systems, (2) the estimated number of crippled children in the United States and in Texas, (3) the number of crippled children on state registers under twenty-one years of age according to crippling conditions, (4) age specific prevalence rates of incapacitating and non-disabling impairments among the urban population of the United States by sex, and finally (5) age specific prevalence rates of incapacitating and non-disabling impairments among Texas children by sex. A study of these tables reveals that there is a far greater need for special education in Texas than has thus far been recognized.

Causes of Orthopedic Handicaps

Every teacher of orthopedically handicapped children should have a knowledge of the general causes of crippling conditions in order that there may be a better understanding of the child's limitations. A consultation with the child's physician to bring out some of the clinical background and individual characteristics of the child's case is highly recommended. The table on common Orthopedic handicaps will serve as a means of identifying the most common crippling conditions; Raney's *A Primer on the Prevention of Deformity in Childhood* is recommended as a reference book.[54]

TABLE IV

Distribution by grade level of crippled children enrolled in special schools and classes in city school systems, 1939–1940[50-1]

Housed with Normal Children in—					Housed in Special Buildings in—				Home Instruction in—			
Elementary Schools	Junior High Schools	4 year or Senior High Schools	Total	Per cent*	Grades 1–8	Grades 9–12	Total	Per cent*	Elementary Grades	Secondary Grades	Total	Per cent*
7,117	118	505	1,740	30.02	6,107	718	6,825	26.47	5,056	965	6,031	23.39

(cont.)

Hospital Instruction in—				Total enrolled in school (with normal children and in Special Buidings)			Grand Total in—			
Elementary Grades	Secondary Grades	Total	Per cent*	Elementary Grades	Secondary Grades	Total	Elementary Grades	Secondary Grades	Total	Per cent*
4,815	373	5,188	20.12	13,224	1,341	14,565	23,105	2,679	25,784	100.0

*(Per cents were computed from numbers given.)

TABLE V

Estimated Number of Crippled Children in the United States and in Texas[49; 64-1]

Explanation	United States	Texas
School children between ages 5–19 in 1945 in United States ..... (In Texas number enrolled in 1945–1946).....	33,604,000	1,490,059
Crippled children	336,040	14,900
Crippled children in need of special education....	112,013	4,966

TABLE VI

Crippled Children on State Registers Under 21 years of Age with Orthopedic Impairment (from 45 States)

(Number of children in Texas computed from per cent given)[27; 64-2]

	Number of Children in 45 States Showing each condition	Per cent 45 States	Number of Children in Texas* Showing each condition	Per cent in Texas
Poliomyelitis	36,271	19.2	2,422	19.2
Cerebral Palsy	19,172	10.2	1,287	15.4
Other Birth Paralyses.....	4,532	2.4	303	.6
Clubfoot	13,784	7.3	921	8.0
Harelip or Clef Palate....	8,232	4.4	555	7.2
Tuberculosis of Bones or Joints	7,196	3.8	479	4.6
Osteomyelitis	11,112	5.9	744	7.5
Scoliosis	6,746	3.6	454	3.3
Rickets	5,607	3.0	378	.8
Burns	4,161	2.2	278	3.3
All Other	67,410	35.7	4,504	30.0
Provisional Diagnosis	4,356	2.3	290	.1
Total	188,579	100.0	12,615	100.0

TABLE VII

Age Specific Prevalence Rates of Incapacitating and Non-disabling Impairments Among the Urban Population of the United States by Sex[41-3]

	Number of Cases per 100,000 Persons			
	Incapacitating Orthopedic Impairments		Non-disabling Orthopedic Impairments	
Age Groups	Males	Females	Males	Females
Under 5	60	51	253	164
5–9	82	82	471	346
10–14	94	95	684	462
15–19	105	99	1,009	540
20–24	119	105	1,462	601

TABLE VIII

Estimates of Crippled Children in Texas, 1945–1946*[14]

Age Groups	Total Boys in Texas, 1940	Total Girls in Texas, 1940	Incapacitating Orthopedic Impairment		Non-disabling Orthopedic Impairment	
			Males	Females	Males	Females
Under 5	291,204	284,476	174	145	736	466
5–9	300,309	293,173	246	240	1,414	1,014
10–14	316,967	310,438	297	294	2,168	1,434
15–19	316,825	319,256	332	316	3,196	1,723
20–24	276,847	291,590	329	306	4,047	1,752

*Estimates of Crippled Children based on Figures in Table IV and *Texas Almanac*, 1945–1946.

Some Specific Needs of the Crippled Child

Crippled children mentally are typical school children but individual mental and physical needs must be recognized in the planning of a program for these children.[29-2] Lee lists the following needs which should receive attention in the educational program for the crippled child:[45-1] (1) lower performance capacity for spastics; (2) adjustment for mental health where escape mechanisms and self-pity are a blight to growth and development; (3) adjustment for retardation where it occurs; (4) treatment for reading disabilities; (5) treatment for speech defects; (6) lower physiological limits for cardiacs. Abrams[2]

TABLE IX

Common Orthopedic Handicaps

CRIPPLING CONDITION	CHARACTERISTICS	CAUSES	DISTRIBUTION FACTORS
ARTHRITIS (Acquired)	Inflammation of joints characterized by swelling, deformity, and pain[25-1]	Streptococcus organisms	It occurs less often in very hot or very cold climates[25-2]
ACCIDENTS (Acquired)	Fractures and dislocations	Falls, blows, violences, burns	There are almost twice as many boys as girls[53]
CEREBRAL PALSY[11] (Acquired or congenital) Spastic paralysis Athetoid Ataxic	Stiffness of movement Involuntary, aimless, movement Unbalanced gait, slurring of speech, and clumsiness	Injury before, after, or during birth; hereditary degenerative diseases	
CONGENITAL ANOMALIES Clubfoot Cleft palate and harelip	Foot turned downward and inward Malformation of palate and lip	Maldevelopment: sometimes inherited[54-1] Maldevelopment: inherited	More common in the South; occurs twice as often in boys as in girls[53]
Congenital dislocation of hip Absence of bones	Hip deformity Absence of parts of the extremities	Abnormal positions, pressure, or arrested development during prenatal period; hereditary[25-3] Arrested development during prenatal period; hereditary[25-4]	More frequent among the Latin races and occurs six times as often in girls as in boys[56-2]
INFANTILE PARALYSIS (Acquired)	Paralysis of parts of the body	Poliomyelitis, a disease caused by a virus	

TABLE IX—Continued

Common Orthopedic Handicaps

CRIPPLING CONDITION	CHARACTERISTICS	CAUSES	DISTRIBUTION FACTORS
MALNUTRITION RICKETS (Acquired)	Deformities in weakened bones Bowlegs and knock-knees[54-2]	Inadequate supply of Vitamin D[54-3]	
OBSTETRIC PARALYSIS (Acquired)	Flaccid muscles of the upper extremities[54-4]	Birth injury[54-5]	
OSTEOMYELITIS (Acquired)	Swellings of infected members; accompanying fever	Stapphylococcus, streptococcus (pus-forming organisms)[23-1]	
PROGRESSIVE MUSCULAR DYSTROPHY (Congenital)	Usually appears in early infancy or childhood dependent upon rapidity of progressions, enlarged calf muscles and waddling gait[25-5]	Disease transmitted from unaffected mother to the male children[25-6]	Found almost entirely in males. Occasionally a female will have the disease in a mild form but it usually disappears at maturity[25-7]
SCOLIOSIS (Acquired or congenital)	Curvature of the spine	Faulty posture, malformation, or nutritional deficiency[56-3]	More boys than girls during growth but three to five times as many girls during adolescence[56-4]
TUBERCULOSIS OF BONES AND JOINTS (Acquired)	Affects spine, knee, hip, or other joints; loss of weight and afternoon fever[54-6]	Germ transmitted through direct exposure to germ or through milk supply[23-3]	More children of poorer districts; more boys than girls[23-3]

lists three additional needs which are worthy of attention: (1) transcription service for those who cannot write nor typewrite; (2) a reduced academic program with fewer subjects; (3) two sets of textbooks, one set for use at home and the other for use at school. Tenny[62] lists the following needs; (1) rest periods; (2) adjustment of desks; (3) classes scheduled on the ground floor; (4) planned assistance to the crippled during fire drills or emergency exits; (5) vocational guidance; (6) wholesome emotional attitude. Ingram[37] lists needs concerned with physical activity and with play, those concerned with language symbols and the mastery of the tool subjects, and those related to concepts of family and community life. Occupational therapy and physical therapy are other important needs.

Transportation is a vital need and traveling facilities involve such factors as safety, time en route, reliability and comfort.[70-2] Practically every community recognized transportation as a public school function where public facilities and the child's own responsibility are inadequate.[24-1]

Special equipment in a school for crippled children is essential; it includes the teaching aids used in the regular classrooms and furniture and equipment which will care for the security, comfort, and restoration of each individual child.[24] Movable desks, tables and chairs of varying sizes seem to be preferred.[19-1] Leg rests, foot rests and arm rests are necessary attachments to desks for children in braces and casts.[24-2] Wheel chairs are necessary for some children. Certain types of suitable furniture and equipment can be made in school shops. If they are not made available by the schools, civic clubs and other organizations are usually anxious to have a part in providing the equipment needed. Blackboards, bookcases, reading and study racks should be on rollers so that they may be moved to any part of the room.[24-3] Pillows, rubber mats, rubber tips on chairs and cots, pads and blankets for the cerebral palsied are also necessary equipment.[43] Bed, easels

and desks, and mobile units which will carry teaching materials to the bedside cases are needed supplies.[19-2] Visual, auditory and motor aids are recommended highly to facilitate learning and to supplement the learning experiences of the crippled child.[52]

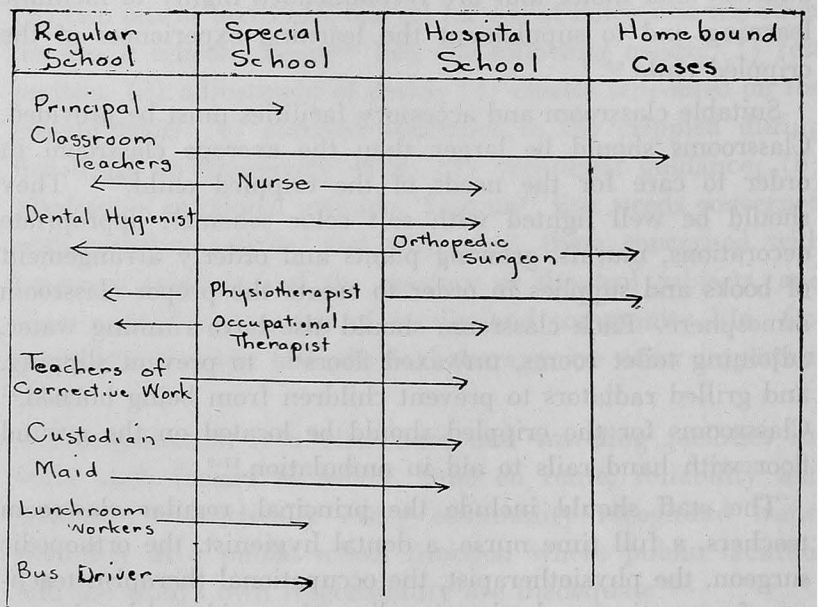
Suitable classroom and accessory facilities must be provided. Classrooms should be larger than the average classroom in order to care for the needs of the crippled child.[24-4] They should be well lighted with soft color schemes, appropriate decorations, murals, growing plants and orderly arrangement of books and supplies in order to create the proper classroom atmosphere. Each classroom should also have running water, adjoining toilet rooms, unwaxed floors[17-1] to prevent slipping, and grilled radiators to prevent children from being burned.[21] Classrooms for the crippled should be located on the ground floor with hand rails to aid in ambulation.[17-2]

The staff should include the principal, regular classroom teachers, a full time nurse, a dental hygienist, the orthopedic surgeon, the physiotherapist, the occupational therapist, teachers of corrective work, the custodian, the maid and lunchroom workers. In order that there may be a coördinated plan of action for the crippled child, this staff of workers should hold conference for the purpose of coördinating the efforts of the school.

The scope of service rendered by this staff of workers has considerable latitude. This is shown by the following diagram. It should be remembered in interpreting this diagram that there are no fixed boundaries of responsibility for each individual.

The individual needs of the children should determine the lunch requirements. Riker[55] suggests a mid-morning and mid-afternoon lunch in addition to a substantial well-balanced noon meal. The families of the children should assume the financial responsibility connected with the lunch program. The school usually provides lunches if the family is unable to assume this responsibility.

Diagram Showing Worker Assignments to the Various Schools



Medical and Other Specialized Assistance

It is not the function of the school to administer medical or orthopedic treatment. But the school can and should be a center of information concerning the orthopedically handicapped. It should extend concern to the pre-school and the post-school groups. It should broaden the amount and kind of information available and should bring the school more and more into contact with other agencies that will be mutually helpful.[34]

In some schools there is an orthopedic center to which children may be sent for treatment on schedules based on free periods in their academic program. In order to provide unbroken treatment for the crippled children, the orthopedic center (or school) is maintained for eleven months of the year. Only children needing treatment attend the summer school.[72]

There is a greater need for physical therapy with the orthopedically handicapped children than among any group of

children in any school. This statement is true because physical therapy is a technique of building back muscle power, increasing joint motion, improving coördination and increasing the circulation through carefully directed exercise and massage. In addition to the orthopedic center mentioned above, there should be an approved physical therapist on the staff.

In the Division of Special Education in the State Department of Education in Ohio, therapeutic training receives special attention. Hutchinson[36] states the following in reference to their program:

> As many orthopedic disabilities in children respond well to treatment, physical therapy has been included as a part of the special school program. Although children in the class are given first consideration, in the more rural areas this service has been extended to a limited number of pre-school, high school, home instruction and regular school children. In planning the school day, rest and physical therapy are woven into the program in such a way that the child has the advantage of treatment with a minimum loss of time from his academic work.

Each individual child may be reached by physical therapy through any one of many plans. There may be no physical therapist available in the school and the classroom teacher may have the responsibility. If so it is recommended that she avail herself of therapeutic courses which are offered in summer school university sessions. and that she read all pertinent material and pass on to the child's family such handbooks for home treatment as would be helpful.[3; 5; 32; 35; 58; 59] There are many activities in daily life which the teacher can test and can teach. Deaver[16] has developed an objective scale for rating the orthopedically handicapped which every classroom teacher can use advantageously. Some of his tests are "Walking up bus steps. Getting up from a chair. Getting up from floor. Walking backward five steps." The results of these ratings will serve as a basis for further training in these activities. In these and many other daily activities the teacher can train the child. Her activities in this field are necessarily limited. An ideal situation would be to have a state physical therapy consultant, and perhaps area supervisors, for the state to coördinate the program. Most school systems can afford

a full time physical therapist as easily as a physical education teacher. The physical therapist in the schools should be one with a physical education background of training and most of these graduates start out into the field on a salary comparable to that of the physical education teacher. Another possible means of providing the necessary training for the child would be for the parents to coöperate in paying the salary of a physical therapist who gives the treatments in a room near the school or in the school. A physical therapist is a variable staff member capable of fitting into many situations and coöperating with all. It is possible for her to handle a mobile unit and travel over the state either in a teaching or an advisory capacity. She can be present at clinics held by the Crippled Children's Division of the State Department of Health and function as liaison officer for all. With her mobile unit she can service the entire field. Latest methods and materials can be taken from the medical center to the tiny school and the modest home. Prescriptions and instructions from specialists can be relayed to parents and teachers on the scene of action. Thus the physical therapist is able to integrate the entire therapeutic program, and to coördinate the work of the superintendent, medical advisor, physical education teacher, classroom teachers and parents in the physical restoration program of the child.

The scope of physical therapy is extensive but elastic. Many modalities can be executed in the average room designated as the gymnasium. A treatment room can evolve from this by the addition of a plain table for massage and an inexpensive radiant heat lamp. A small underwater exercise tank made by the local tinner could also be added. This set-up would be sufficient for practically all necessary physical and recreational therapy. Table X on *Disabilities—Therapeutic Techniques, Physical and Recreational* shows the variety of activities which can be carried out in the average school with a good physical therapist.

Table XI on *Distribution of Responsibilities for Therapeutic Training* shows how the responsibility for the therapeutic program can be delegated to a regular teacher, a physical educa-

TABLE X

Disabilities—Therapeutic Techniques, Physical and Recreational

	Muscle Re-education	Muscle Education	Balance	Co-ordination	Relaxation	Stretching	Under water Exercises	Whirl Pool	Nerve Stimulation	Sun Baths	Ultra-Violet Light	Radiant Heat	Diathermy	Massage	Corrective Games	Dramatics	Pantomime	Adapted Sports	Singing	Folk Dances	Modern Dance	Apparatus	Toys, Throw	Toys, Catch	Toys, Wind	Toys, Hammer	Toys, String	Toys, Two Hands	Quiet Games	Rest
Cerebral Palsy		2	3	4	5	6	7							14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Congenital Disabilities		2	3			6	7	8				12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Infantile Paralysis	1		3	4		6	7	8		10		12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Arthritis	1		3		5	6	7	8		10		12		14	15	16	17		19				23	24	25	26	27	28	29	30
Osteomyelitis	1						7	8		10		12		14	15	16	17		19				23	24	25	26	27	28	29	30
Tuberculosis of Bone					5					10						16	17		19						25		27	28	29	30
Brachial Paralysis		2		4	5	6	7	8	9	10		12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Rheumatic Fever					5												17		19										29	30
Burns	1					6	7	8				12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Fractures	1			4	5	6	7	8				12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Nerve Injury	1			4	5	6	7	8	9			12		14	15	16	17	18	19			22	23	24	25	26	27	28	29	30
Spinal Cord	1		3	4	5	6	7		9			12		14	15	16	17	18	19			22	23	24	25	26	27	28	29	30
Postural	1		3	4	5	6	7					12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Scoliosis	1		3	4	5	6	7					12		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Rickets	1		3	4		6	7			10	11			14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

TABLE XI

Distribution of Responsibility for Therapeutic Training

Level A Classroom Teacher	Level B Corrective Physical Education Teacher All of A Plus B	Level C Physical Therapist All of A and B Plus C
Correct mechanics of walking all directions, sitting down in chair, getting up from chair, sitting in chair, going up and down steps, walking with crutches, walking with canes, propelling wheel chair, grasping objects as crayon, manipulating objects as pencils, carrying objects, stooping for objects, getting up off floor, falling relaxed to avoid injury.	Training in formation of proper health habits.	Muscle training in infantile paralysis, cerebral palsy, congenital disabilities, obstetrical paralysis, nerve injuries, old contractures from burns, injuries, etc., sprains, contusions, arthritis, osteomyelitis.
Co-ordination training in picking up objects with finger and thumb, grasping and releasing, throwing and catching, turning key or doorknob, walking straight line, tying shoestrings, tying tie, lacing shoes, buttoning clothes, putting on coats.	Postural training for forward head, round shoulders, hollow chest, round upper back, lordosis (hollow back), hyperextended knees, weak and flat feet, scoliosis.	Under water exercises, massage and radiant heat for any of the above disabilities.
Supervised free play.	Corrective exercises for dysmenorrhea, constipation, visceral ptosis, functional cardiacs, overweight, underweight.	Muscle testing.
Supervised rest.	Corrective games, adapted sports, exercises on gymnasium equipment and with mirror.	Checking on furniture adjustments.
Supervised relaxation to insure unhurried movement at all times.	Other original activities.	Checking appliances.
Supervised motor learning activities incorporated in school subjects as: play money for arithmetic, anagrams for spelling, cut up map for geography.		Teaching child how to use appliances.
		Relaxation exercises.
		Recreational therapy, games, plays, music (toy orchestra, sedative and pantomime), finger painting, educational toys.
		Training parents to do home exercises.

tion teacher and/or a physical therapist. Group A activities might be carried out by the regular classroom teacher under the supervision of the physical education teacher. Group A and Group B activities might be carried out by the physical education teacher under the direction of the physical therapist, while Group C activities should be attempted only by a trained physical therapist. It is imperative that all groups be guided by the physician at all times.

Recreational therapy forms the coördinating link between physical therapy and occupational therapy. It is the use of creative music and art, singing games, dances, rhymes, pantomimes, educational toys, corrective games and playground apparatus in an educational program. This enrichment of the child's education through recreational therapy is of inestimable value. Walton and Volay[69] say that, "The child's play and school work are really his adult vocation in the making . . . with this criterion in mind, games in school work should have a preparatory or usable value." An idea of the utilization of this therapy may be gained from the chart on *Disabilities—Therapeutic Techniques, Physical and Recreational Therapy.*

Planning the Educational Program

The regular academic course of study with modifications to care for individual physical and mental needs is generally followed[24-5] since there is no close relation between physical deformity and mental abilities.[26] Social and mental ages as well as classroom achievement must be considered in planning scholastic training.[24-6] The attending physician should determine the extent to which each child should engage in school activities.[51]

Absence from school is a definite cause for retardation among crippled children[38] and a flexible program is necessary[17-3] because of interruptions for medical examinations and treatments, brace fittings, rest periods, and other activities of a physically corrective nature.

Provision for academic training should be made from the first grade through high school and on to college[60] or "gains

made earlier in life may go for nought."[47] Special facilities should be provided also for crippled children in the slow-dull groups and the mentally deficient, the hard-of-hearing, those with speech handicaps and other related handicaps.[70-3]

The basic tool subjects are highly desirable because they are usable in the crippled child's vocational career. Semi-vocational courses should provide training which will later stimulate industrial and social experiences.[12-1]

Repeated appraisals of the child in educational, physical and personal traits are necessary[50-2] and the teacher should evaluate and modify her techniques to keep pace with changing human and social needs.[9] Tasks that he cannot perform should be supplemented with those that he is able to do with a certain amount of accuracy.

Home instruction, which should be provided only for those children who are confined to their homes because of physical disability, usually includes an instruction period of from one to three hours per week.[10]

An extensive Arts and Crafts program should be offered. This might be occupational therapy which "is an activity, mental or physical, prescribed by a physician for its remedial value."[15]

The beneficial effects to be gained from occupational therapy are physical, mental, social and economic.[3] If the maximum physical value is to be gained, it will be necessary to have a person trained in occupational therapy to teach the arts and crafts to the orthopedically handicapped or to direct such a program. Fish[22] and Willard[71-1] explain that courses in biological, social and clinical sciences as well as the techniques of arts and pre-vocational subjects are the basis of this training. Facts about training centers can be supplied by the American Occupational Therapy Association.*

Arts and crafts commonly used in therapy work are: knitting, reedcraft, raffia, cane-seating, bookbinding, weaving, pottery, use of hammer and saw, rug-making, hand printing,

*American Occupational Therapy Association, 175 Fifth Avenue, New York, New York.

painting, lapidary, jewelry making, block-printing, metalcraft, netting, needlecraft, knotting, and finger painting.

For the homebound program, handcraft such as bead-work, hand-loom weaving, raffia, knitting and braiding seem most feasible. An ingenuous teacher with a traveling kit of equipment can provide the home-bound student with constructive material that will mean much for leisure pastime. For the student in the regular school, since there is a similarity between the occupational therapy program and that of the industrial arts, an occupational therapist can supervise the work of the regular teachers of the industrial arts.[33]

The teacher untrained in crafts might obtain books on arts and crafts, materials, and equipment from catalogs of occupational therapy,[28] handcraft,[20] and leathercraft.[66] A regular teacher might consult the child's physician to determine what therapeutic exercise might be in order. With this diagnostic information the teacher should be able to use the *Manual on Occupational Therapy of the American Medical Association*[4] and a knowledge of handcraft techniques to accomplish many of the desired results.

In view of the fact that social and economic adjustment is the challenge of our work with crippled children,[45] vocational guidance, vocational training and follow-up should have a definite place in the educational program for these children.

Bridges[8] points out that recent improvements in labor and workmen's compensation laws have increased job placement of the handicapped. Studies[57] prove that the handicapped, if properly placed, compare favorably in work efficiency with that of normal individuals. In training for ultimate economic efficiency, teachers might be guided in the instruction of the crippled child by Marten's[48] list of jobs for handicapped.

1. Office work includes bookkeeping, comptometer operating, filing, general clerical service, stenography and typing.
2. Personal service includes art needlework, beauty culture, child care, domestic service, dress designing, millinery, practical nursing, sewing and tailoring.
3. In the industries the following types of work are represented: armature winding, auto mechanics, baking, cabinet

making, carpentering, chair caning, floor finishing, jewelry making, metal art work, pipe polishing, printing, shoemaking, sheet metal work, sign painting, upholstering, and watch making.

4. Among the professional and semi-professional occupations listed are: art, chemistry, drafting, law, library work, music, occupational therapy, photography, social work, teaching and writing.

5. Selling includes magazine agencies, store clerking, shopkeeping, and petty selling.

6. Factory work is limited and largely unspecified as to type.

7. Among the miscellaneous activities mentioned are elevator operating, filling station attendance, radio broadcasting, switch-board operating and wireless operating.

8. Agriculture occupations reported are chicken raising and farming.

Some of the major problems calling for counseling and guidance of school children are: health, home and family relationship, religious life, leisure time, personality, school life, vocational possibilities and social life.[40-1] It is apparent that the crippled child has a high probability of having a problem in each of these areas. Hence it is desirable to have a guidance program for all crippled children. In the elementary grades this usually requires the use of a cumulative record folder with appraisals of the child's progress as well as the necessary counseling similar to the program in use in Glencoe, Illinois.[42-1] The crippled child's folder should include complete clinical information obtained through the child's physician together with any suggestions for special handling. This program of pupil study through measurement of ability and achievement is directed toward individual adjustment, and can be largely carried out by the classroom teacher.[42-2]

A modification of the Philadelphia plan[7] of evaluation of abilities and interests through self analysis and vocational explorations, with some of the Boston plan[40-2] of job analysis and techniques of job procurement seems most feasible for the intermediate handicapped, because it emphasizes the in-

dividual rather than the handicap, and because many of these individuals do not continue their general education beyond this level.

In some instances pre-vocational and vocational courses need to be adjusted to the needs of the crippled child. Special pupils may be required to take a year of experimental shop under a special teacher before they are recommended for regular shop work.[61]

At the secondary level, guidance should be continued for all handicapped students. This should include the use of *The Teacher's Manual of School Courses and Related Careers*,[6] the *Directory for Jobs for the Cerebral Palsied*,[18] and the *United States Operations Manual for the Placement of the Handicapped*.[67]

The Texas Office of Rehabilitation offers a counseling, vocational training, and placement program to all persons over sixteen years of age who have a physical impairment that constitutes a handicap to employment;[39] this training may begin during the secondary education of the older crippled child. The school should also maintain a follow-up service to help give the handicapped a place in life.

Prevention

"The cardinal principle of public health is that *prevention* is the only real cure, and also the most economical and effective."[30]

Health education in the school is one of the best means of improving general health standards for protection and prevention. The school can and should be a center of information concerning the prevention and care of the handicapped. It should extend concern to the pre-school group. It should continually remind school children *to be careful* of themselves and of their playmates. Particularly *young adults* should be impressed with facts which will carry over into their parenthood for the protection of the next *generation*. The parents of young children should be reached with this education for prevention. The school can reach all of these groups with

information, and establish contacts with other agencies that will be helpful.[34]

In addition to general preventive measures of health, safety and sanitation, it is well to know something of the means of preventing diseases, which are the most common causes of crippling conditions.

Syphilis can be prevented in the unborn child by professional medical treatment of the mother, if begun by the fourth month and continued throughout the entire period of pregnancy. Clubfoot and hip dislocation can be prevented only through eugenics. Adults who have congenital abnormalities should seriously consider the possibility of hereditary transmission.[54-1]

Obstetrical paralysis and cerebral palsy can be prevented in most cases by careful prenatal living habits of the mother, and correct medical attention at birth. If the child should be born with deformities, permanent crippling may be avoided by early surgery and treatment.

Poliomyelitis is little understood as yet. Since the disease does not strike every child it is assumed that the general health level makes a difference. Avoid taking a cold* and give close attention to hygiene of the mouth, nose and throat, by which channels the germ is thought to enter the blood.

Osteomyelitis, being a secondary disease, may be avoided by preventing any infection which could penetrate into the bone tissues. A neglected bruise or wound or bad teeth or tonsils could be the source from which the inflammation would be received that would eventually destroy the bone.

Bone tuberculosis like all other forms of tuberculosis, can be prevented by eliminating tuberculosis from milk herds and by avoidance of contacts with tubercular people. Children from pre-school age on, should periodically be tested; and if test is positive should receive preventive treatment of rest, sunshine and milk.[54-2]

*The only effective way to avoid taking a cold is to avoid over-fatigue or prolonged loss of sleep.

Rickets, a bone deforming disease, is caused by lack of Vitamin D and is prevented and cured by supplying Vitamin D in adequate amounts. This is done by daily supply of sunshine and codliver-oil from the age of one month to two years.[54-3]

Authorities on prevention say, "The child's general health should be kept at the highest possible level." Thus the child's resistance is kept up and he is protected in the best possible way.[54-4]

A powerful agent of the parent and community education is the school nurse, or any public health nurse. She is the connecting link between the official state agency and the home. The nurse comes into the home; she sees the condition; gets acquainted with the people; has the confidence of people; gets information and gives it; saves duplication of effort by keeping all agencies informed. She is the consultant of local schools and of clinics. She may be qualified to administer therapeutic measures, which is a most important preventive measure, especially in preventing social diseases.[13]

Through the school, the clinic, or other health center, people become educated to the need of prevention and early care if disease appears. The teacher is the directing force of most of this activity.

The teacher needs to be well informed on sources of financial aid for crippled children both as a preventive and a curative measure. There are many organizations of a federal, state, and civic nature offering assistance in both direct and indirect ways. There are some limitations to each. The best liaison officer would be the teacher who is in a position to refer cases and arrange the initial contact with the proper persons. A chart on Sources and Kind of Aid Available to Crippled Children giving this information is included for the teacher's reference. This chart, listed as Appendix A, is placed at the end of the handbook.

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CHAPTER V

Understanding and Helping the Child With Speech Defects

Definition of Defective Speech

The criteria for recognizing defective speech are simple. West, Kennedy, and Carr[19-1] sum them up very neatly in five brief statements:

> It is unintelligible, inaudible, or confusing to the auditor; it draws attention to itself because of its conspicuousness; it is unpleasant to hear or is accompanied by movements unpleasant to behold; its production is labored and difficult or it lacks smoothness of rhythm; or it is inappropriate to the age level of the patient in type, amount, rate, or degree of development.

This definition of defective speech not only clearly presents the nature of the handicap but also strongly suggests some possible approaches to the solution of speech difficulties.

Incidence of Defective Speech

Speech defects are the most prevalent of all the handicaps of childhood. In addition to those who have speech as their only difficulty, there are the hard of hearing, the spastic, those whose home language is not English, and the mentally retarded, who are very likely to exhibit disorders of speech. Martens[16] has estimated that 1.0 to 2.0 per cent of all children 5 to 19 years of age have speech defects. Other studies of elementary and secondary school children have resulted in estimates varying from 2.8 per cent (Wallis in St. Louis, 1916) to 22.5 per cent (Blyton in Washington State, 1938).[21-1]

Distribution of Speech Defects

The report of the White House Conference Committee,[20] indicated that approximately 73 per cent of all speech defects were articulatory; 22 per cent stuttering; 4 per cent disorders

of voice; and only a small fraction of 1 per cent can be classified as disorders of language. Boys have speech defects much more frequently than girls. Surveys by Louttit and Hall in Indiana, 1936; Strother in Washington State, 1936; and Wallis in St. Louis, 1916,[21-2] showed that defects of articulation were most numerous in the primary grades, 3.0 to 7.5 per cent in the first grade, and decreased steadily until there were only 0.5 to 2.0 per cent in the eighth grade.

Causes of Defective Speech

The causes of defective speech may be classified as physical, social, and psychological.[21-3] Under physical causes may be listed: defective hearing; defective, injured, or diseased brain; defective respiratory mechanism; defective larynx, pharynx, mouth, or nose; defective endocrine and autonomic systems. Social causes include the following factors: Poor speech standards in the environment; inadequate incentive to learn speech; and environment conducive to emotional instability. Psychological causes reveal two aspects: acquisition of habits of incorrect speech and emotional maladjustment.

Parent Education and Home Adjustment

"It takes both home and school to insure the growth of personality that is mature, poised, socialized, and rich in potentialities for service."[14] Parents, in many instances, may not realize how vital it is for them to set a good speech pattern for their children. The first few years of a child's life are the most important in speech development. "Competent authorities estimate that as much as 65 per cent of all speech defects, especially stuttering, originate in the first three years of life."[2-1] Children tend to imitate those around them and to be emotionally affected by their tensions. If his family does not have good speech habits, it is quite unlikely that those of the child will be good. Another time in a child's life when he particularly needs the understanding and sympathetic help of teachers and parents is in early adolescence. The emotional strain that accompanies early adolescence should be minimized as much as possible.

Once a correction program is set up for children with speech handicaps, the speech correctionist may expect many different attitudes on the part of the parents. A tactful teacher can do much to correct erroneous ideas held by parents, thereby allaying their fears and enlisting their coöperation. Backus[1-1] suggests that the teacher must enlighten the parents on the following points:

a. The prevalence of speech defects

b. Their effects on the child's school progress and personality development

c. The fact that many defects will not be outgrown

d. The possibility of correcting most types of defects

e. The need for rehabilitation at an early age

f. The idea that the presence of a speech defect is no disgrace and that it is not causally related to mental retardation.

It is the responsibility of the teacher to inform the parents of the speech-correction program planned for the child and to enlist the coöperation of the parents. Van Riper[17-1] suggests that it is good to "prepare a general outline for each child. Copies of this are sent to the parent, principal, and the classroom teacher."

Conferences between the teacher and parents are most essential. The conferences may be held at school or in the home. Quite often the first contact is made by sending a note home. Such notes should be very carefully worded. Otherwise, the parents may become offended, and the relationship between home and school greatly harmed.

Backus[1-2] gives us an example of just the type of note that may bring about such a breach:

Dear Mrs. Brown:

Will you come to school on Monday afternoon at four o'clock so we can talk over Jimmy's defective speech?

Signed.....

The following note, likewise suggested by Miss Backus, would be much more conducive to coöperation:

Dear Mrs. Brown:

You may have noticed that Jimmy has some difficulty with his speech. It can and should be corrected. I should appreciate it very much if you would come to school on Thursday afternoon at four o'clock so we can talk over the best way of handling the situation. (Or ask for a home call.)

"Conferences between parents and the speech-correction teacher can clarify the lengthy program usually necessary. Special techniques can be explained, the sub-goals outlined, and the amount of expected progress can be estimated."[17-2]

The teacher should let the parents share in the correction program by sending home assignments to be supervised by them. Naturally, these assignments should be short and easy to carry out. "Over-zealous parents should be urged not to force their child ahead too fast. . . . An example of quiet, unhurried, effortless speech should be provided by both parents and teachers."[9-1]

Bender and Fields[2-2] recommend that the following suggestions may be given by the speech-correctionist to the parents of speech handicapped children:

Do not nag the speech handicapped child.

Try to keep the child's point of view when dealing with problems that concern him.

Do not coddle the speech handicapped child.

Do not dominate him.

Encourage the socialization process in his personality development.

Coöperate to make him a happy member of his group.

Remain interested in the child's program of speech development.

General Procedures for Purposes of Diagnosis

Since the causes of defective speech are physical, psychological, or social in nature, the influence of these factors upon the child with defective speech must be determined.

Speech Examination

A thorough and detailed description of the child's speech should include (1) careful examination of his understanding and use of language; (2) observation of pitch, quality, and loudness of his voice; (3) observation of the rate and rhythm of his speech; and (4) observation of correctness of pronunciation and clarity of articulation. Special examination of factors found to be defective should be made by means of phonetic tests in the case of articulatory difficulty. In the case of stuttering, a description of the spasm pattern should be made.

Test of Hearing

Use of the whisper or watch-tick tests will aid the teacher in discovering children with serious hearing difficulty. The audiometer is still better. Children with severe hearing loss should be referred to the ear specialist for a more thorough examination.

Examination of Speech Mechanism[3-1; 17-3; 21-4]

An examination of the organs involved in speech should include these procedures: (1) the lips: Determine the child's ability to purse and retract his lips easily, smile with incisors on the lower lip, move independent the right and left corners of the lips; (2) The jaw and teeth: Ask the child to make a s-s-s and note irregularities in dentition and whether the breath stream escapes centrally in s, z, t, and d; (3) The tongue: Note whether it lies neatly within the lower dental border when inactive and whether the frenum is sufficiently long to permit free extension of tongue beyond orifice of mouth; (4) The hard palate: Note whether any evidence of present or past cleft exists; (5) The soft palate (velum): Examine for presence of cleft, shortness, uvular abnormality; atrophy, or asymmetry; (6) The pharynx; Note presence and condition of adenoids, inflammation, and amount of mucosa; (7) The larynx: Laryngoscopic examination ordinarily requires the services of the specialist; (8) The nose: Note presence of any obstruction in either nostril.

Breathing habits should be observed by watching for the common breathing abnormalities: (1) speech attempt on inhalation; (2) lack of synchronization between the thorax and abdomen; (3) wastage of the exhaled air; (4) shallow inhalation; and (5) too deep inhalation.

Case History

The following background information about the child should be obtained: (1) history of birth and physical development; (2) description of family, of home, and of outside environment; (3) statement of school record; (4) record of social and emotional adjustment; and (5) history of speech defect.

Test of Intelligence

The intelligence of the child may be measured by either (1) an individual intelligence test, or (2) a group intelligence test.

Other Tests

Additional tests that are valuable in providing fuller understanding of the child with a speech defect are here listed: (1) Test of pitch discrimination; (2) Test of auditory memory span: Have child repeat from memory a list of sounds or nonsense syllables given to him orally; (3) Test of motor coordination: Simple test, such as walking a straight line; (4) Test of laterality: Simple observation of native-sidedness of eyes, hands, and feet; (5) Test of school achievement.

Over-View of Treatment for Articulatory Speech Defects

As the articulatory defect in speech is characterized by the substitution, addition, omission, and distortion of speech sounds, the child thus handicapped must be convinced that he has errors which he can and must eradicate.[17-4] The causes of the disorder, if still existent, must be eliminated. If those causes are no longer present, their influence must be overcome. Through intensive ear training the old word configurations are broken down so that the correct sound and the error may be isolated, recognized, identified, and discriminated. By

various means, the child must learn to produce the correct sound in isolation and at will. The new and correct sound must be strengthened and incorporated within familiar words. Finally, the use of the correct sound must be habitual, and the error totally eliminated.

Since restricted space prevents the insertion of numerous practical suggestions, speech games, drills, and word lists that are invaluable to any speech-correction program, several excellent sources of such materials are presented in Appendix B. Most articulatory speech defects among children will respond favorably to treatment by the classroom teacher, under the general supervision of the speech-correctionist.

Specific Articulatory Defects

Indistinct Speech[19-2]

Characteristics: Indistinct speech is characterized by lack of clarity, and by insufficient force, nasality, jerkiness, monotony, and rapidity. It is the opposite of the clean-cut speech produced by accurate adjustments of the articulators for the utterance of individual sound units and of blends in connected speech.

Causes: (1) Muscular sluggishness; (2) Feeling of inadequacy and lack of self-confidence; (3) Imitation of poor speech models.

Treatment:

(1) When indistinct speech is associated with an obvious pathological condition, the remedial procedure prescribed for that specific physical disorder is indicated.

(2) When an indistinct speaker is obviously handicapped by self-consciousness, attempts should be made to relieve him of his embarrassment through better emotional adjustment.

(3) With respect to the inactivity of one or more articulators, careful observation, both auditory and visual, will indicate the specific organ to be trained.

a. Use of recording device and play-back to acquaint the subject with his own voice.
b. Use of the mirror as an aid in eliminating conspicuous movements.

(4) Remedial exercises for indistinct speech.

a. For the articulators: mandible, lips, and tongue.

b. For rate: have the subject read aloud, timing himself. Have him observe his rate by listening to himself.

Bilingualism and Foreign Dialect[1-3]

Characteristics:

(1) Substitution of letters, such as *t* for *th*, or *v* for *w*.

(2) Substitution of whispered for voiced sounds.

(3) Confusion between aspirated and unaspirated plosives.

(4) Atypical melody is a distinguishing characteristic.

(5) Stress, chiefly as it applies to the pronunciation of words, is an important factor.

(6) Faults in grammatical structure are especially prevalent when foreign-born persons are first learning English.

Causes: (1) Imitation of the characteristics of the native tongue; (2) Imitation of the so-called "broken English" of the parents; (3) Imitation of people in the environment who speak English natively.

Treatment:

(1) Motivation

a. The child should not be penalized for being born of foreign parentage.

b. Strongly motivated drill and speech activities should be provided in the classroom to offset the foreign language influence of the home environment.

(2) Teaching the sound units.

(3) Changing the melody and rhythm patterns.

(4) Using proper stress in the pronunciation of words.

(5) Improving grammatical structure.

Since Spanish is the home language of many school children in Texas, a list of the sounds in English that are missing in Spanish or that are difficult for the Latin-American child should prove helpful.

TABLE XII

Missing and Difficult Sounds to Make for Latin-American Children

Authorities	Missing	Difficult	Key Words	Misusage
Van Riper[17-5]	wh		why	y
	j		joke	yoke
	z		zero	sero
	ng		thing	thin
	oo		book	book as in fool
	a		paw	
	i		pit	peet
	th-voiced and voiceless		this-teeth	dis-teet
California Bulletin[5] adds the following to Van Riper:		v, h, l, t, r, d, b, and g	v-very b-rabbit	berry ravvit
Keppie, Wedberg and Keslar[7] add:		ch	chair	shair
Rhor[11] agrees with above and adds:		sh	shoe	choe
		ch	chair	shair
		a	cat	cet
		e	sheep	ship
		o	or	
		u	but	boat
		u	burn	
		a	main	
		u	full	

Short Auditory Memory Span

The child with a short auditory memory span reveals an inability to retain auditory impressions, especially those without syntax or meaning. The effects of this deficiency upon the ability of the child to speak and read are quite obvious. The child with this handicap talks at a late age, has speech pecularities, is not musical, and often becomes a behavior problem.[12]

Test of auditory memory span: The child should be instructed to listen very carefully when the examiner pronounces a certain sound and then to repeat this sound when the examiner raises his hand. "With the proper motivation and rapport, any person of normal intelligence and hearing who is more than six years old should be able to repeat the following syllables after a delay of five seconds: *ab; eeg, aze; oop; ife.*"[17-6] The series type of auditory memory span test uses a series of nonsense sounds to be repeated.

Lengthening the auditory memory span:[3-2]

1. Pronounce clearly and distinctly, at the rate of one second per unit syllables such as those here listed. The child understands that he is to wait five seconds after the series has been pronounced; then he is to repeat the group exactly as given: *sket, tems, sme; a-lit eol, marp; stapla, kakaley, pankaroo.*

2. Ask him to pronounce incorrectly the sound *l*, for example; wait 30 seconds; then have him voluntarily reproduce it as he said it the first time.

3. Have him imitate after an interval of 10 seconds the pitch changes within a single sound, within a single word, and then within a group of words.

Baby Talk

Baby talk represents a necessary stage in speech development, during which the child cannot make adequately all the sounds of his own language. This short-coming should normally be left behind, however, by the age of four to five years.[18]

Characteristics: (1) Frequent omissions and substitutions of sound units, such as "wed" for "red" or "dween" for "green" and difficulty with *g*, *k*, *ng*, *l*, and *r* and (2) Subdued volume, increased volume, or monotony of volume and pitch.

Causes: (1) Deficient or defective hearing; (2) Short auditory memory span; (3) Child's retaining or reverting to the speech of his infancy or environment.

Treatment:

(1) The child should become familiar with the operation and use of hearing aids in the classroom.

(2) The child should be encouraged to enter into speech situations.

(3) The child shown be shown by use of a mirror the positions of the tongue and lips in making correct sounds.

(4) The child who retains or reverts to his infancy in speech must be motivated to independence.

Tongue-Tie

Normally the tongue is anchored to the floor of the mouth by a cord known as the frenum, which allows the tip to move about freely but prevents the tongue from slipping down the throat in sleep. If an insufficient proportion of the tongue is left free because the frenum is too short or because it is attached too near the tip, the articulation of all the tongue-tip sounds will be modified. Whenever the child displays the defective phonation pattern by which consonant combinations are omitted, the sibilants are all blurred, and the general speech is very indistinct, it is well to investigate for possible tongue-tie. If the tongue is tied, it will be noted that any attempt to extend it causes it to flatten at the point with a marked rib down the center.[10]

Treatment:

(1) If the frenum is only slightly short, tongue exercises may overcome the speech difficulty.

(2) A physician should be consulted on the question of having the frenum clipped.

(3) A regular course of exercises, just as in the case of lalling, to encourage flexibility, energy, and control of the tongue should be given.

Lalling

Characteristics: (1) It is thick, unclear speech, articulated mainly in the back of the mouth; (2) Sometimes a sound approximating "aw" is substituted for the *l* and *r* sounds.[3-3]

Causes: (1) Mental deficiency; (2) General motor incoördination; (3) Childhood diseases, such as a scarlet fever, diphtheria, partussis, and encephalitis; (4) Too large a tongue; or (5) A short frenum.

General procedure in establishing basic coördination:

(1) Strengthen the moto-kinesthetic-acoustic cues.

(2) General and specific motor coördination exercises involving the body as well as the special organs of tongue, lips, and palate.

(3) Study of the timing of the movements to produce the sound and to blend the sound with other sounds.

Specific techniques:

(1) Make the sound the way the subject has been making it, then the way it should be made. Repeat several times. When the subject thinks that he can do it both ways, have him produce the correct way several times, finally the incorrect way.

(2) Ask him to imitate the *l* and *r* sounds in the world about him.

(3) "Act out" jingles and songs as you say them. For example, sing and act "London Bridge," substituting for the words: "lah-lah-lah."[9-2]

Lisping

Characteristics:

(1) Lisping is the most numerically significant speech disorder among school children.

(2) This disorder may be defined as any marked deviation in the pronunciation of any or all of the sibilant sounds: *s*, *z*, *sh*, *ch*, or *j*.

(3) There are three common types of lisping: (1) the lingual protrusion lisp, which is the most common form, (2) the lateral emission lisp in which the tongue is curled by and approximates the production of *l* and the sound issues from one or both sides of the protracted tongue, and (3) the nasal emission lisp in which the sound issues through the nose in a kind of snort because of a short velum or cleft palate.

Causes of lisping: (1) Impairment of the hearing; (2) Malformation of the teeth or jaws; (3) Lip paralysis; (4) Obstructions in the throat or nose; (5) Some psychological inadequacy, such as excessive timidity, over-docility, or prolonged infantilism.

Treatment:

(1) In many instances, orthodontia is a necessary preliminary to speech correction work with lisping. Where the lisp has a physical cause, the mechanism should be repaired or improved so far as possible.

(2) Phonetic reëducation should then follow.

(3) The general plan is to combine ear training and careful explanation of the production of the correct sounds with an analysis of the patient's incorrect production.

(4) Imitation of the teacher's example, aided by the use of the mirror, should be used to establish the correct production of the sound in isolation.

(5) This should be followed by exercises in reciting words, phrases, anad sentences containing the sound in all positions.

Cleft-Palate Speech[17-7]

Cleft-palate speech may vary from a very slight nasal lisp to a form of speech in which the consonants and vowels are so disturbed that even the parents of the child can seldom understand him. Profound disturbances of personality also often occur.

Causes: (1) Imitation; (2) A soft palate that is paralyzed or sluggish or too short; (3) A cleft or opening along the midline of the soft or hard palate or of both palates.

Treatment:

(1) Surgical:

a. Much can be done for the cleft-palate child through surgery if it is attempted early in life.

b. In some cases where the operation is unsuccessful or cannot be performed, an obturator can be used.

(2) Speech-correction procedures:

a. Strengthening the soft palate through exercise.

b. Directing the air through the mouth.

c. Increasing the mobility of articulatory structures.

d. Correcting defective consonant and vowel sounds.

Voice Disorders

Although the voice disorders account for only about 10 or 15 per cent of the speech correctionist's cases, they are frequently the most difficult of all problems. In general they may be classified as disorders of pitch, of voice quality, and of intensity or loudness.

Disorders of Pitch[17-8]

The pitch of the voice is determined by the length, mass, and tension of the vocal folds. The natural pitch level of each individual is the pitch level at which the individual's larynx will produce tone most efficiently. Voice modulations will be established at this general optimum pitch level. Symptoms of pitch disorders: (1) The pitch is too high; (2) The pitch is too low; or (3) The pitch is monotonous.

Treatment:

(1) Convincing the student of the inadequacy of his habitual pitch.

a. Comparison of his voice with that of others through phonograph recordings.

b. Evaluation of his voice by other members of the class.

(2) Using ear-training techniques in the recognition and discrimination of pitch levels and variations.

(3) Enabling the child to use the desired pitch level.
   a. The piano and other musical instruments should be used to make him conscious of the desired pitch level.
   b. Comparative activities involving the old and new pitch should be stressed.

(4) Making the new pitch level and range habitual.
   a. The child must gradually become accustomed to the new level.
   b. After the child has become thoroughly accustomed to his new level, definite procedures can be used to make the child consistent in its use.

(5) Cases with pathological condition of vocal mechanism.
   a. Refer such cases to laryngologist for treatment.
   b. Retrain speech using suggestions from laryngologist as a basis.

Disorders of Voice Quality

Aside from nasality and denasality, which show rather clearly defined symptoms, disorders of voice quality are usually difficult to classify accurately and specifically. Two additional disorders considered here are breathiness and throatiness.

Nasality: Excessive nasal resonance, in which sounds in addition to those of *m*, *n*, and *ng* are nasalized.

Causes: (1) Cleft palate; (2) Dialectal influence; (3) Weak or insufficient velum; (4) Tightened jaw; (5) Adenoids.

Treatment:

(1) The teacher should determine which vowels or continuant consonants are the most abnormal.[17-9]

(2) Help child to recognize his unpleasant voice quality.

(3) Give exercises to strengthen the velum.

(4) Give relaxation exercises.

(5) Refer pathological cases to the specialist.

Denasality: Lack of nasal resonance and substitution of *b*, *d*, *g* for *m*, *n*, *ng*. Causes: (1) Enlarged tonsils and adenoids; (2) Growths in nose; (3) Deviated septum; (4) Extremely high palate; (5) Chronic sinus infection.

Treatment:

(1) Refer to a specialist.

(2) After correction of obstruction, proceed with nasality treatment.

Breathiness: Excessive breath emission, accompanied by too much unvocalized air. Causes: (1) Paralysis of vocal cords; (2) Misuse of voice; (3) Psychological origin denoting fear or excitement.

Treatment:

(1) Refer to a specialist.

(2) Use breathing exercises, such as blowing a whistle. Strive for steady stream of emitted air.

(3) Use pitch exercises.

Throatiness: A choked, throaty quality of voice. Cause: Chronic constriction of the genio-hyoid and genio-glossus muscles of the throat.

Treatment:

(1) Relax throat muscles through manipulation of muscles below the chin and through use of general relaxation exercises.

(2) Raise the pitch.

(3) Give singing exercises to reduce tension.

Disorders of Volume

Volume here refers to the factor of relative intensity or loudness of voice and any disorder of volume strongly suggests defective hearing. Voice may be too loud, not loud enough, or totally lacking.

Voices too loud

Causes: (1) Poor hearing; (2) Personality maladjustment; (3) Imitation; (4) Occupational influence.

Treatment: The child who talks too loudly should be motivated to speak in a more pleasing tone of voice. He should be encouraged to speak and read with less volume than usual. Many children are inclined to speak in too loud a voice in order to hide a feeling of inferiority. In the case of personality

maladjustment the teacher will need to help the child to become better adjusted and therefore, should have some knowledge of mental hygiene. These procedures should be preceded by an examination for hearing deficiency and proper treatment by the ear specialist.

Voices with inadequate loudness

Pintner, Eisenson, and Stanton,[8] define inadequate loudness as follows: "A voice may be considered lacking in loudness if it is not easily audible in ordinary conversational situations. The terms *weak* or *thin* are generally used to describe such voices." Causes: (1) Lack of sufficient breath power; (2) Inadequate direction of the breath stream; (3) Inadequate use of the resonators.

Treatment: "Help the child to develop a relaxed and well-poised body by practicing relaxation exercises, posture exercises, and breathing exercises.[2-3] A short, deep breath firmly controlled can produce a big tone.

Aphonia

Bender and Fields[2-4] describe aphonia as follows: "Literally 'without sound.' A disorder or voice whether functional, psychological, or organic in cause whose outstanding symptom is a whisper-like quality, devoid of pure tone." Causes: (1) Organic defects; (2) Emotional stress; (3) Physical overstrain.

Treatment:

(1) If aphonia is caused by organic defects, the case should be referred to a physician.

(2) If emotional stress is the cause, the problem should be handled by a psychiatrist.

(3) If the disorder is a result of overstrain, complete rest of the voice should be enforced.

Disorders of Rhythm

Disorders of rhythm are generally characterized by interruptions or breaks in the rhythmic flow of speech and include cluttering, stuttering, and spastic speech.

Cluttering: Cluttering results when the individual's ability to speak is at variance with his desire to speak; his ability to articulate cannot keep up with his desire for expression. His words are incorrectly articulated or spoken so rapidly and slurred so grossly that they appear devoid of meaning.[13] Causes: (1) Weak moto-kinesthetic imagery; (2) Short auditory memory span; (3) Inadequate breath control; (4) Psychological and emotional influence.

Treatment:

(1) Familiarize child with his articulators, particularly the lips, tongue, and palates. Work for the *feel* of sound production. Froeschels[6] suggests lip-reading and use of pictorial phonetic scripts.

(2) Use treatment suggested elsewhere for short auditory memory span.

(3) Train child to relax progressively and consciously in all situations. Try to direct breath stream to front of mouth. Imitate radio announcers who speak slowly and distinctly. Work on breathing exercises.

(4) Strive to objectify the child's attitude toward cluttering. Remove or outwit disturbing emotional or psychological factors as far as possible.

(5) The clutterer should be given special attention in the remedial reading class.

Stuttering: Stuttering is a breaking of the rhythm of speech. It may be spasmodic action of the speech organs, the inability to speak at times, or the repetition of the initial vowel or consonant of a word. Possible symptoms of stuttering are blocking, repetition of sounds and words, prolongation of sounds, breathing anomalies, hesitation, delay or refusal to recite, facial and other bodily contortions, extraneous words, and bizarre sentence structure. Causes: There is no single cause of stuttering. Van Riper,[17-10] pages 55 and 56, and Travis[15] think there are two sets of causal factors, predisposing and precipitating.

(1) Predisposing factors: (a) Stuttering in the family history; (b) Birth injuries; (c) High fevers during onset and

development of speech; (d) Retardation in motor coördination; (e) Thyroid medication; (f) Shift of handedness; (g) Prolonged emotional strain.

(2) Precipitating factors: (a) Emotional shock; (b) Physical shock; (c) Cumulative pressure or insecurity; (d) Use of the non-preferred hand for writing and other fine skills; (e) Speech conflicts, such as fear of interruption, confession of guilt, speech competition, or speech exhibition; (f) Prolonged illness; (g) Exhaustion; (h) Excessive timidity; (i) Hypersensitivity; (j) Feelings of inferiority; (k) Self-consciousness; (l) Anxiety.

Treatment: Backus,[1] Travis,[15] and Van Riper[17-11] agree that stuttering falls into two distinct stages, primary and secondary. The onset of stuttering in a child is characterized by mild repetitions or slight prolongations. At this point the child is not aware of the fact that his speech is different from that of other speople. When the stutterer becomes aware of his difficulty and begins to force or struggle with the attempt to speak, he has reached the secondary stage. He uses unnecessary force in articulation, gross bodily movements and increases the tension of the chest and mouth musculature. He may use any number of devices to make his speech effort easier and less obvious. Social maladjustment usually develops. The treatment here suggested is taken from Van Riper.[17-11]

(1) Primary stage: (a) Remove all speech conflicts; (b) Keep child in as good physical condition as possible; (c) Maintain a pleasant home situation; (d) React unemotionally to stuttering blocks at home and at school; (e) Cancel all unpleasant memories or experiences of stuttering; (f) Try to establish favorable speech situations; (g) Give the child as many ideal speech situations as possible; (h) Insist upon unilaterality in most of the child's activities; (i) Train him to perform temporal patterns with the paired musculatures; and (j) Increase personality assets and decrease liabilities.

(2) Secondary stage: (a) Continue training in unilaterality; (b) Continue training in the performance of temporal patterns with the paired musculatures; (c) Eliminate stutterers tendency to avoid feared words and difficult speech situ-

ations; (d) Initiate a program of general self-improvement; (e) Change mal-attitudes of shame, embarrassment, and unpleasantness associated with stuttering; (f) Train the stutterer to erect psychological barriers against disturbing influences; (g) Guide the stutterer in the study and the analysis of his symptoms; (h) Have older stutterers conduct research on stuttering and discuss the subject freely; (i) Help the stutterer to modify the form of his stuttering by eliminating postponement, initiation, anti-expectancy, and release devices.

Spastic Speech: Spastic speech is marked by spasmodic, unsynchronized movements and sounds; it is slow and labored and is accompanied by explosive articulation, facial contortions, and incoördinate breathing. Causes: (1) Birth injury; (2) Encephalitis; (3) Cerebral arterioscleroris; (4) Any lesion in the brain that prevents the organs of speech from functioning in rhythm and coördination.

Treatment:

(1) Emotional training:

a. Relaxation exercises are valuable in training for emotional control and for voluntary control of the striped muscles.

b. Voice exercises aimed at the production of smooth well-modulated "relaxed" tones often help because they assist in the process of relaxation.

(2) Gymnastic exercises: These should be prescribed by the orthopedic specialist to fit the needs of the individual.

(3) Breathing exercises:

a. These should be aimed at subordinating the breathing movements to voluntary control.

b. They should not continue for more than fifteen minutes at a time.

(4) Phonetic reëducation.[3-4]

a. There are compensations and allowances which have to be made in teaching many articulatory positions.

b. Begin with the vowels.

c. In attacking the consonants, begin with the more visible and more easily produced sounds.
d. In a few cases the last phase of training may be to teach the child to telescope syllables, that is, to show greater variation in accent and pitch.

Dysphasia

A dysphasic child manifests an inability to deal with symbols; consequently all functions involving the use of language, a symbolic process, are disturbed. These functions include reading, writing, speaking, and the comprehension of speech.[3-5]

Causes: (1) General cause: Injury to the cerebral cortex; (2) Causes of cortical disturbance: tumors, traumas, hemorrhage, embolisms, thrombosis of blood vessels supplying the cerebral cortex, meningitis, syphilis, and encephalitis.

Treatment:

(1) The diagnosis and suggestions of the neurologist are of primary importance.

(2) The reëducation of the dysphasic is a slow process and requires a skilled clinician, regular and frequent training periods, and instruction over a long period of time.

(3) The essence of rehabilitation is to teach by building up strong associations.

(4) A beginning is made by selecting a few basic words close to the environment of the child, such as his wants, food, clothing.

Delayed Speech[17-12]

The term "delayed speech" may be used in referring to a child who (1) Has no speech, relying upon grunts and gestures for all communication; (2) Has considerable vocalization, but whose speech is distorted and bizarre, or (3) Had early speech with the loss of the ability to speak after an illness, accident, or emotional shock. Causes: (1) Low intelligence; (2) Hearing defects; (3) Emotional conflicts; (4) Lack of motivation; (5) Bilingual conflicts; (6) Poor auditory memory span.

Treatment:

(1) Discover and eliminate the cause of the speech delay as soon as possible.

(2) The first project should not contain more than five or ten words, and they should be monosyllabic or should consist of repeated syllables, such as "mama."

(3) After the first set of names has been chosen, the teacher begins to teach the sounds which are used therein.

a. By stimulation and other forms of ear training.
b. By combining the sound with some activity.
c. By placement of the organs of speech.

(4) After the child has been taught to make the sounds which are included in the five or ten words previously selected, the teacher's next task is to teach him to combine those sounds to form words.

a. By teaching whole words.
b. By teaching sound sequences.

General Social and Vocational Adjustments

Helping the child to make the best use of his abilities is listed first among the purposes of education set forth by the Committee of Educational Policies of the National Education Association. It is not helping the child make the best use of his abilities when he is allowed to go through several years of school with a severe speech defect that has been ignored. His most valuable means of communication is distorted. His attitudes, his ideas are consequently thrown out of focus. Feelings of inferiority, of being different or "odd" and acute sensitiveness may result, creating additional problems.

Many cases may be cited of persons who were capable, efficient, possessing pleasing personal appearance, who were unable to secure the kind of employment they chose because of a defect in speech. Without a feeling of personal adequacy in social and vocational situations, no individual can make happy adjustments. The greatest service we as teachers can render a child with a speech defect is to help him conform to the traditional cultural standards of his environment. His

social adjustments will be accelerated and his vocational adjustments much simplified.

Sources of Assistance

(1) Bureau of Mental Hygiene; Houston, Texas.

(2) Child Guidance Clinic; Dallas, Texas.

(3) National Committee for Mental Hygiene; 50 W. 50 St., N.Y.

(4) National Congress of Parents and Teachers; 600 South Michigan Blvd., Chicago, Ill.

(5) State Department of Health, Austin, Texas.

(6) Child Welfare Department, Division of Child Care; Austin, Texas.

(7) Texas Relief Commission, Austin, Texas.

(8) Texas Society for Mental Hygiene, Austin, Texas.

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CHAPTER VI

Children With Lowered Vitality

Literally millions* of children in the public schools of America are deprived of their full opportunity for growth and development because of hidden weaknesses which reduce their capacity for benefiting from the opportunities that are provided for them and leave them without energy or ambition to improve their lot. In classifications of exceptional children these are known as the lowered vitality group. For many of them the basic trouble is lack of nourishment, which may be either insufficient food or improper assimilation of food. Others suffer from congenital weaknesses. As a group they are suspcetible to infectious diseases. All of these conditions may be aggravated by improper habits of living and sleeping. The generally weakened condition of those suffering from lowered vitality causes them to be unable to participate on equal terms with normal children in the school.

These children are often accused of being lazy or uninterested, when in reality, they are victims of lowered vitality and are in need of special consideration. They may be indolent, slow, listless, apathetic, or indifferent. They may be active in a project for a short time and then lose interest. Their body can perform all the functions which the average child performs, but because of their physical weakness they are not able to keep pace with those who possess normal strength and energy.

The classification of the children of lowered vitality in this chapter will include those who are (1) malnourished, (2) tubercular, (3) cardiopathetic, (4) asthmatic, and (5) anemic. Children who are weakened by glandular disturbances, encephalitis, and epilepsy are often included with the lowered

*In chapter I it was shown that 15 children out of 1,000 are so debilitated that they belong in special classes, but there are 177 others in each 1,000 whose vitality is below the normal level. The value in terms of health and happiness that would accrue from intelligent corrective measures applied to these children is immeasurable.

vitality group. However, in this study these have been included in the chapter dealing with the nervous child.

Discovery

Early discovery in the case of any of these children is highly important, for finding these chilrdren may not only save their lives but may save them from becoming a burden on society through either physical disabilities or maladjustments to the point of their paying social penalties.

Every school should include in its yearly program a physical examination for every child. This should locate most of the children with lowered vitality. However, many schools do not have and do not require a thorough yearly check-up. This puts great responsibility on the teacher and the school principal. Because of her daily observation and study of each child, the classroom teacher is in a key position to discover signs of lowered vitality. She can do much to see that early treatment is started in home and school, for it is the duty of the school to help these children back to normal health and to normal activities as soon as possible.

Home Conditions

The home conditions have even more to do with the child's welfare than the school. In some cases it is necessary for the school to assist in educating the parents in their methods of dealing with children of lowered vitality. The services of the school officials and related agencies such as the public health nurse, the school doctor, the social worker, physicians or others in the community may be needed to bring about in a tactful manner the necessary changes in the home.

Responsibility of the School

In a few cases of extremely lowered vitality, the child is unable to attend school but can be taught at home by a teacher who gives full or part time to such service.* Another group of these children cannot keep up physically with the work in

*There is no acceptable reason why all educable homebound children cannot have at least a few hours of instruction each week. If there are only one or two they can be taught by volunteer teachers who plan together and share the responsibility.

the regular classroom but can attend a special school or class in which the children follow a simplified program which allows much rest, special supplementary diet, and transportation to and from school. However, the great majority of the children with lowered vitality can and should attend regular school.

The classroom teacher can do much for this large group through health education and the development of good general health habits. The importance of these habits may be emphasized through daily health inspection, school lunches, and supervised play. The seriousness of the case of each individual should determine his daily schedule for work, play, food, and rest. The teacher must be mindful of the fact that the child with lowered vitality cannot do his tasks with the ease of the normal child.

Table XIII giving dominant symptoms of the chief contributing factors to lowered vitality in children should assist the teacher in discovering the weakened child. Brief discussions of the most common conditions and diseases which cause lowered vitality are included to help the teacher understand the handicaps of these children so that she can arrange an educational program which provides for the needs of all those under her direction.

Mulnutrition

The malnourished constitute the largest and the most neglected group of those with lowered vitality. It is hard to locate a malnourished child in the early stages of the disease but in the later stages symptoms are pronounced and easily observed. The children in this group actually starve to death by slow degrees. The causes of essential malnourishment fall into three groups: insufficient or improper food, inability of the body to assimilate food, and certain parasitic diseases.

When the body does not receive food over a period of time there are a number of tragic results. These are usually expressed in such diseases as pellagra, scurvy, and rickets. Each of these diseases denotes a deficiency of necessary vitamins and minerals in the body and each may be corrected by supplying the body with these elements.

TABLE XIII

Symptoms and Causes of Lowered Vitality

Symptoms	Malnutrition	Tuberculosis	Rheumatic Fever	Anemia	Asthma	Infections causing Malnutrition: Malaria	Hookworm	Ascariasis
Abdominal pains			X					
Blood in sputum		X						
Cold skin				X				
Chills						X		
Cough—continual		X						
Deep and rapid respirations			X					
Dizziness			X					
Failure to gain weight	X					X	X	X
Fatigue	X	X	X	X	X	X	X	X
Fever		X	X			X		
Frequent attacks of bronchitis			X					
Frequent attacks of tonsilitis			X					
Growing pains			X					
Labored breathing					X			
Lack of stamina	X	X	X	X	X	X	X	X
Loss of appetite	X	X						
Loss of weight	X	X						
Nosebleeds			X					
Pallor	X		X			X	X	X
Palpitations			X					
Rapid pulse			X	X				
Rash—slight			X					
Sharp pains			X					
Small knots under skin			X					
Subnormal temperature				X				
St. Vitus Dance			X					
Thirstiness				X				
Vomiting				X				
Wheezing and coughing					X			

Inability to assimilate food efficiently results in a serious condition for the individual who is affected. The foods may be present in the body but cannot be digested. Infections of tonsils or teeth and adenoids, or failure to recover properly from an illness may casue this deficiency in assimilation of foods. Fatigability is sometimes classed as a factor in malnutrition even though nothing else relative to nutrition can be found. The child may have been born with low vitality and tires too easily, or he may go on forced energy until he is exhausted. He works too hard and plays too hard, he stays

up too late at night and hurries through his meals. He borrows energy from the needs of basic metabolism and so becomes malnourished.

Parasitic infections cause a large amount of malnutrition. Such infections develop in warm, damp regions when living conditions are unsanitary and unhygenic. Malaria* is a parasitic infection with proneness to relapses. Hookworm,* another parasitic disease incubates in the intestines and drains the body of its energy and vitality. A third parasitic infection is ascariasis which results in hemorrhages from the lungs.

Much can be done for this group, the malnourished, by the sympathetic and willing classroom teacher if she only has the information concerning early discovery and proper referral.

Discovery

Teachers should make daily observations of each pupil for any signs of illness or deviations from the normal. Studies show that various factors such as poverty, ignorance, maladjustment, or history of early childhood disease may have a part in the present condition of the child. All these things, his weights and measurements, and daily behavior data may be recorded and referred to in such observations. The height-weight-age relationship may give the first indication of a malnourished condition. Height-weight tables for boys and girls, ages 5 to 19 are given in Appendix C at the end of the handbook.

> In the use of these tables age is taken at the nearest birthday, height at the nearest inch, and weight at the nearest pound. The child is not considered underweight until he is ten per cent or more under the weight given in the table for his height and age. He is not considered overweight until he is about twenty per cent above the figure given for weight.[4-1]

One who is underweight or who fails to gain weight should be referred to a physician for a careful examination. If any other of the symptoms of malnutrition are seen the child should have a physical examination. The physician will determine

*The State Department of Health furnishes upon request literature for detailed information concerning Malaria and Hookworm.

the specific cause if such a condition is found and then treatment and adjustments follow.

Doctors are agreed[10-1] that 1500 calories a day are necessary for the body to perform the fundamental functions of living. When less than this amount is assimilated, the body begins to feed upon itself, fat layers between muscles and around vital organs disappear and resistance to disease is low.

All parents need to know the nutritional requirements of their children. Sometimes children, through oversolicitude, ignorance, carelessness, or neglect, on the part of the parent as to eating habits become just as malnourished as those who do not have enough to eat. Visual education* is an excellent method of pointing out the right foods. The school lunch provides a workable medium for teaching about foods and eating. Habits of cleanliness and regularity, proper choice and amounts for nutritional needs should be established. Every school can and should provide a school lunch which yields one-third to one-half the day's nutritional need.

> For best health we should have five to seven eggs a week, one serving of meat, one pint of milk, two vegetables besides or other than potatoes (if possible one of these green), citrus fruit or citrus juice or tomato juice, butter or its equivalent, cereal or bread, each day. Eat enough to maintain your proper weight, to eat less invites fatigue. Eat no more than you need to maintain that weight.[13]

The State Department of Education will grant a nine cent reimbursement per child per meal. This granted sum together with a small pupil charge will keep the school lunch within the reach of all.

Undernourished children need extra food and they need extra rest. School programs may be flexible enough for these children to be spared all the strain of competitive games and to take short rests during the day's work. Many activities on the school ground make this easy. These children need at least ten hours of sleep every night. Parents should know if

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*The Visual Instruction Bureau, Division of Extension, The University of Texas, Austin, Texas, loans films on nutrition and many other vital problems. This service is on a non-profit basis and should be used by all schools.

their children need extra rest for extra rest at school does not necessarily mean extra rest at home.

Malaria ranks high among causes for malnutrition in Texas. It is not a person to person communicable disease[3] but is carried from infected person to susceptible person by the anopheline mosquito. This mosquito sucks up malaria parasites from the blood of an infected person acting as host for their cycle of development within her body then injects them through her bite into the blood of the susceptible person. To prevent malaria avoid the bite of the anopheline mosquito. Houses should be adequately screened and pools of water should be covered with oil.

Teaching habits of cleanliness and proper bodily care help protect the child from hookworm and ascariasis. The parasites which cause these diseases enter the body through the bare feet from the soil where human intestinal waste has been thrown. Hookworms multiply and stay in the intestines. The treatment is very simple but must be given by a doctor. The parasites causing ascariasis are hatched in the intestines then carried in the blood stream to the lungs causing hemorrhages in severe cases. Sanitary toilets can be obtained at very low cost if people are shown the need.*

Pellegra is a condition caused by deficiency of an important factor known as vitamin B_2. Liver, wheat germ, and brewer's yeast are rich in the pellegra preventing element. It is found in meat, and milk, and to some extent in green vegetables, tomatoes, and bananas.

The lack of vitamin C causes scurvy. It cannot be stored in the body for any length of time. Natural sources are citrus fruit, tomatoes, leafy vegetables, apples and other fresh fruits, and potatoes, peas, and green beans if they are not cooked too long.

A deficiency of mineral matter in the bones eventually causing deformities of the bony structure of the body is called rickets. Vitamin D is the rickets preventing element and can

*The State Department of Health, Austin, Texas, will send, upon request, literature pertaining to sanitation and health.

be formed in the child's own body upon exposure to the sunshine.

A physical examination will show if local infections are causing malnutrition. If the tonsils are infected they should be treated as the doctor advises. Some parents will take care of all of this as soon as they know the situation. In cases when financial help is needed, the County Health Unit may take care of it; if not, the civic clubs or the Child Welfare Association will gladly help. This also pertains to infected teeth or adenoids.

Fatigue affects the sympathetic nervous system which slows down the digestive process. It is commonly known that it does no good to eat when one is too tired. Some children are chronically tired and so become malnourished. They need rest and plenty of good food.

The many children who suffer from this condition, malnourishment, offer one of the greatest of challenges to teachers. There are so many of them and they are so neglected, and they, like all other children, deserve development into wholesome individuals fitted to make a living and to play a proper part in our community. But finding them, then understanding and helping them solve their problems, will help fulfill our responsibility to help them develop mentally, socially, educationally, and physically.

Tuberculosis

One of the most talked about and feared maladies that affects the children in the schools of America is tuberculosis. Tuberculosis knows no age limits, but the most dangerous age period for the actual development of pulmonary tuberculosis is 16 to 30. Fewer than five per cent of the tuberculous deaths occur before the person is fifteen years of age. Sixty per cent of the female mortality occurs before forty years of age while sixty per cent of the male mortality occurs after forty years of age.[9-1]

The tuberculosis death rate has declined rapidly during the present century. It has declined from 202 per 100,000 population in 1900 to 46 per 100,000 population in 1940.[9-2]

In the March 2, 1940, issue of the *Journal of the American Medical Association*, the following data were given: the daily average number of children in the United States in tuberculous institutions in 1938 was 6,838. The largest number, 5,382, were in sanitoriums; the next largest number, 890, in preventoriums; and the smallest number, 566, in hospital departments.[15]

Communities vary widely in the amount of potential infection which they carry, ranging from 10 per cent in some cities to 90.2 per cent in others. The actual presence of tuberculosis in children varies from 0.5 per cent to about 3.5 per cent.[1-1]

Discovery of the Child

The tubercular children include those who have been active cases but have recovered sufficiently not to expose others, those who have been in contact with tuberculosis at home or elsewhere, and those with active cases of tuberculosis.

Locating children infected with tubercle bacilli is the first step both in protecting normal children from infection and in providing proper care for those infected. The school offers a splendid opportunity for early diagnosis for tuberculosis. The presence of the disease may be detected by a physician giving the tuberculin test to all children, pre-school and school, if possible. This, followed by an X-ray film of the chest and a thorough physical examination for all children with a positive reaction, establishes the absence or presence of the disease.

Probably the most useful bit of information resulting from the positive tuberculin, besides emphasizing infection has occurred, is that it indicates a source of infection lies within the body's body contacts. Upon investigation and study by the city or county health nurse of the immediately household contacts, in many cases unrecognized and unsuspected sources will be located. Thus through the location of the active case and the patient can be given the benefit of early treatment, and the source of infection for the household as well as the community eliminated.

Causes

Tuberculosis is not inherited. It is caused by infection from the germ tubercle bacillus. The germ may live within the body for a long time before it begins to multiply. If at any time the body becomes weakened, the patient infected is likely to develop a tuebrculous disease.

Tuberculosis received from cattle through milk is now practically non-existent. This is due to pasteurized milk and careful inspection of cattle. Most all cases of tuberculosis result from personal contact with an infected person.

Prevention

"No plan of campaign against tuberculosis can possibly meet success which does not center its main efforts upon infancy and childhood."[16] Tuberculosis is a preventable and curable disease, the success of cure depending upon early discovery.

Early recovery from tuberculosis depends upon a well ordered daily routine consisting of adequate fresh air, good food, and plenty of rest. Such a program may be carried out more successfully in a hospital than in the home. The Children's Hospital[14] at Sanitorium, Texas, provides splendid institutional care for children who have beginning tuberculosis or who are in need of preventive treatment.

What the Schools Can Do

Preventive measures are important for the non-infected children. The schools can do much to safeguard their health in forestalling advanced stages of the disease by providing "good environmental conditions, health instruction, and practices in such fundamentals as well-balanced diets, ventilation, conservation of energy, and the knowledge that healthy body is the best prevention of disease."[11-1]

Much can be done also for children who are infected and have passed the stage when the disease has become arrested. For such children the school can provide rest periods, school lunches, and properly directed play and recreational activities. The curriculum should include information about daily food

requirements of the child's body, proper ventilation adjusted to atmospheric conditions in home and school, and prevention and spread of diseases which contribute to the development of tuberculosis.

Both social and vocational adjustment of the tuberculous is important to his future good health in that he must refrain from certain activities. He must avoid heavy or strenuous work, or any work requiring an unusual amount of physical exercise. He must not engage in occupations pertaining to food or children. Help in discovering proper vocations for the tuberculous may be determined by use of aptitude tests, such as finger and tool dexterity, technical ability, vocabulary and classification tests.[5-2] Whatever work he performs must be done under the most hygienic conditions, and he should never forget that good food, plenty of rest and good fresh air are essential to an arrested state of the infection. The tuberculous child can be trained to adjust his life in accordance with his difficulty.

Cardiac Defects

A child with an organic heart disorder is definitely handicapped and must receive special attention at home and at school if he even approaches normal living. His vitality is naturally lowered when his most vital organ does not function properly.

Defining heart disease is difficult as there are no formal definitions as are found for many other physical impairments. Baker offers the following definition: "In general, it is an impairment of the heart below that of the normal or average condition. It may vary in degree from a very slight defect or deviation to an extreme condition which requires quiet and no physical exertion."[1-2]

There are a few children who are born with anomalies in the large blood vessels which carry the blood from the heart or with anomalies in the heart itself. These disorders are classified as congenital defects.

A second, and by far the most common, is an acquired form of cardiac defect which results from infections—especially rheumatic heart infection.

Congenital Heart Disorders

Congenital heart diseases are due to abnormal development of the heart before birth. In many instances the abnormalities are so severe that the children are either born dead or survive only a few hours or weeks. Many children are born with minor heart defects, have no disability, and never become aware of the existence of these abnormalities.*

The American Heart Association states that congenital malformations account for only five per cent of the heart disorders found in children.[6-1] Since many of these live only a short time, and since many are unable to attend any public school, the regular teacher has few encounters with children suffering from congenital heart defects. However, it is wise that she knows some facts about these conditions.

Cyanotic Condition

The most striking group of congenital cardiac abnormalities is made up of those in which the child is cyanotic, or blue because the blood does not contain its normal quota of oxygen. Many of these die in infancy or early childhood, but there have been numerous exceptions to this general rule. If the victim is especially careful and refrains from all undue physical activity, guards against exposure to colds and other infections, and lives a well-regulated life, he has chances of living an almost normal span of years.[1-3]

If the teacher has such a cardiac child in her care, the above precautions should be followed, and she should ask for further information from the child's parents and physician.

Non-Cyanotic

The other main class of congenital heart disorder is the non-cyanotic group. Other than fatigue brought on quickly by physical exertion, there is nothing in the outward appearance to suggest heart disease; and only a careful examination will establish its presence. In general the outlook is more helpful for this group.[7]

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*Radio broadcast over station KNOW, Austin, Texas, June 19, 1940. "Heart Disease in Children," issued by the State Department of Health, Austin, Texas.

This form of congenital heart disease is called *patent ductus arteriosis*. There is an abnormal opening between the lwo large arteries that leave the heart. This faulty duct pushes blood which should be distributed over the body back into the lungs. It overloads this part of the circulatory system, weakens physical development and limits activity.

By means of a long and delicate operation, physicians are now able to obliterate the abnormal duct connecting the two arteries by tying a heavy braided silk thread around it. It is highly recommended that this operation be performed at an early age when a child suffers from this heart defect, for after a short convalescent period he is ready for normal life.

Infected Organs as Causes of Cardiac Disorders

Heart conditions may also be associated with decayed teeth, diseased tonsils and adenoids, for the heart may become diseased from the infiltration into the blood of infections from these diseased parts of the body.

In the treatment of such heart conditions the discovery and the removal of the source of the infection are the first considerations.[1] After the removal of the infection, the teacher's duty is to help the child, and his parents if necessary, build toward his good general health. If the heart is damaged the teacher should follow the orders of the doctor in arranging the curriculum and activities for the child. Follow up cardiac tests are essential.

Rheumatic Heart Disease

Rheumatic heart disease comes as the result of rheumatic fever, which is caused by infection in the body. The most dangerous result of the disease is the damage which it often does to the heart. This damage cannot be outgrown. However, with proper care in choosing work and play, people with rheumatic heart disease, even many with severely damaged hearts, can live reasonable active and useful lives.[6-1]

A characteristic feature of rheumatic fever in children is its tendency to recur. Some children have only one attack, but many have frequent recurrences, each of which is likely to do further damage to his heart.

A special bulletin from the American Heart Association warns that: "A child who has had rheumatic fever, whether or not there is any demonstratable damage to his heart, should be under regular medical supervision either by a private physician or by the school physician."[7]

It is known that "rheumatic fever kills more school-age children in the United States than any other disease."[5-1] But the number of deaths only suggests the real problem; for in addition to those who die from the disease, there are thousands who have rheumatic fever attacks which in many cases last for months. Frampton and Rowell state that rheumatic heart disease accounts for about ninety-five per cent of the defective heart conditions of childhood.[8-2]

Causes

The most deplorable fact which can be mentioned is that "the cause of rheumatic fever is unknown and there is no specific way of preventing it."[5-2] It has been discovered that the disease is not spread in the same way that easily caught infections like chickenpox and measles are spread.

It is generally believed that susceptibility is inherited and that "anything that undermines the child's general health makes him more apt to develop the disease. Inadequate food and clothing, lack of rest, damp and crowded houses, all make the child more likely to have rheumatic fever."[5-3] Streptococci have long been suspected of playing a causative role in rheumatic fever, and certain streptococcal infections of the upper respiratory tract usually precede both the initial attacks and reactivation of the rheumatic process.[12-1]

Varying Incidence with Age

Authorities differ slightly as to the age at which rheumatic fever is most likely. In general, however, they agree that:

1. Rheumatic fever is uncommon in preschool age children.
2. It strikes most frequently children between the ages of five and twelve.

3. During the teens, recurrent attacks often become fewer and fewer, and usually at about fifteen or sixteen years of age the attacks stop altogether.

4. Rheumatic fever attacks in adulthood are rare.

Treatment

The treatment of rheumatic fever is primarily a medical problem, but it is of great importance to these children that the teacher help the child take proper precautions during his long convalescent period following the attack, and that she is able to help him make adequate adjustment to his future. But it is more important that the teacher be alert in recognizing the symptoms of rheumatic fever in children who have it for the first time, and the recurrence of the disease in children previously affected.

Present knowledge indicates that proper nourishment, proper hygienic surroundings, proper rest and exercise, protection from chilling and dampness, and protection from colds and streptococcal throat infections are wise precautions for all children and especially for those who show susceptibility to or have had rheumatic fever.

If the teacher discovers any symptoms which cause her to suspect that a child might be developing rheumatic fever, she should refer him immediately to a physician; for "the first and most important essential is adequate diagnostic service."[12-2] Baker warns that the teacher should never be discouraged if her suspicions about heart conditions are not verified in every case.[1-4]

The Teacher's Responsibility

After the teacher has referred the child to a physician and he has diagnosed the disease as rheumatic fever, the child will be under strict medical care, usually in a hospital, for some time. The doctor is the only one who can judge when it is safe for the child to be allowed to resume any activity. The regular classroom teacher can do little other than make an occasional visit. Her real contribution will be made when the child is allowed by the physician to attend regular school.

As to whether or not the cardiac can compete with the normal in training, depends upon the degree of heart disorder, his mental ability, his general health and his school attendance. McLeod suggests that "none of the children should be permanently classified but should be reclassified by the physician from time to time. The teacher should change his school activities in accordance with the reclassification made by the physician."[11-2]

The pamphlet *Rheumatic Fever in Children* gives some sane principles which give a quick review of the school's responsibility to children who suffer from rheumatic heart disease:

1. Detect signs and symptoms of acute rheumatic fever in any child in the school population.

2. Teach children with rheumatic heart disease to lead reasonable and well-regulated lives.

3. Encourage rational school attendance rather than perfect attendance.[12-3]

Mental Hygiene

However, a precaution must be pointed out. In teaching a child who has rheumatic heart disease that proper care is necessary for him, he must not be babied and pampered to the extent that it will make his living with other people in home, school, and community difficult for him and those with whom he associates. He should be led to enjoy his home and school life within the prescribed limits without overemphasizing the physical handicap. This must be accomplished without making the child become self-centered or neurotic.

Guidance

The child who suffers from a damaged heart is limited in his activities and needs special guidance in choosing his life work. The teacher will find it helpful to ask outside agencies to assist in this guidance program. The school physician, school nurse, the public welfare worker, the school counselor, principal, superintendent or other local citizens may be asked to assist. Such guidance and real training in many skills

might be arranged for children over sixteen years of age through the State vocational-rehabilitation service.*

Because most of the work which is done by uneducated people is usually manual labor for which the cardiac is physically incapable, it is imperative that those with heart disorders be encouraged to finish high school; and college training should be taken if possible. Vocations which give the best chance of avoiding heart strain should be chosen.

Asthma

An asthmatic child is definitely quite low in vitality when an attack of asthma is present. Sometimes the attacks may last for a few minutes, or they may be prolonged for days. Other than the expected amount of exhaustion immediately following an attack, the patient is perfectly normal until there is a similar recurrence.

The patient's real trouble during an asthmatic seizure is in getting air out of the lungs. During this labored breathing there is usually a cough which brings mucus from the bronchial tubes. The air passages are tight and partially filled with mucus so that a definite wheezing is usually heard, especially during exhalation.

Asthma is not contagious and the attacks may occur at any time during the day or night. The causes differ with the individual, but the following are the more general and basic causes:

1. Allergy to foods, animal hair, pollens, dust or other elements.
2. Enlarged thymus gland.
3. Sensitive or irritated bronchial tubes.
4. Emotional disturbances.
5. Weakened heart or heart muscles.

The asthmatic child is a case for medical treatment, but it is well that the teacher work with the physician and parents in helping the child avoid all attacks possible. The general rules of moderate exercise and the practice of good general

*State Vocational-Rehabilitation Service, Austin, Texas, Mr. J. J. Brown, Director.

health habits are recommended in addition to specific individual regulations.[2-1]

Anemia

Another neglected group of the lowered vitality children includes those who are anemic. Children have a tendency toward anemia. However it is more often due to the reduction in number of red blood cells than in the lack of iron in a single cell. It may result from such diseases as malaria, hookworm, or syphilis; or it may be caused by severe infections, hemorrhages, or internal bleeding. In some cases it may be caused by the lack of iron.

Treatment

When the teacher suspects that a child is anemic, he should be taken to a doctor. The only way to detect anemia is to examine the blood. Anemia responds readily to treatment, especially when discovered at an early date. However only the doctor should prescribe the treatment since there are so many types of anemia. If the child has some form of internal bleeding, the doctor may be able to stop the hemorrhage by an operation.

Prevention

The classroom teacher can do much to prevent anemia. When a child is recovering from a disease that may cause anemia, care should be taken that he does not become overfatigued. Sores and infections should always receive prompt care. Another thing the teacher can do is watch the diet of susceptible children to see that they get a sufficient amount of iron. Foods rich in iron include whole grain cereals, egg yolk, liver, lean meat, peas, beans, dates, raisins, rhubarb, spinach, and beets.

Summary

In summing up the responsibilities of the school for children whose vitality is lowered, it is of real importance to remember that the objectives of education are the same for these children

as for those classified as normal. A double purpose is accomplished when the school adopts an adequate program for the children of lowered vitality, for corrective measures for this group are excellent preventive measures for all children.

Good environmental conditions are important for all. Well ventilated, properly lighted, sufficiently heated, adequately equipped classrooms are basic essentials for learning.

In addition to the regular academic and industrial courses taught, a definite, well-organized health program provides means for improving not only the health of the children of lowered vitality, but also serves to further the proper development of all children. Well balanced lunches preserve health and increase strength and energy. Fresh air, sunshine and rest are necessary for all.

Just as the robust child needs the benefits of a well-organized guidance program in the school, so the child with lowered vitality needs such assistance. In either case the degree to which the services are appropriate to the individual needs and abilities is the real test of the program.

Records and facts in themselves are of little value to anyone, especially to the school child. However, records well-used are vitally important and extremely worthwhile in developing the whole child so that he may benefit from the opportunities that are provided for him.

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CHAPTER VII

Children With Nervous Disorders

Introduction

The purposes of this chapter are two fold. First, to assist those working in special education to discover, understand, and deal intelligently with children designated as nervous by the Texas law. Second, and more important, to emphasize the importance of working with children as children and not as problems, handicaps, or cases.

Every classroom teacher has the obligation to recognize and, if possible, to provide treatment for all children who exhibit nervous disorders. Too frequently these children are not differentiated from those who are mischievous and trying but who have no basic organic or emotional disturbance. Many times abnormal behavior and attitudes represent rebellion against irritation furnished by the school environment. The intricacies of behavior should always be traced to their sources.

The teacher needs to look beyond irritating behavior and see the symptoms of underlying conditions more serious in the life of a child. She must alert herself for all warning signs: the complications of early childhood diseases sometimes found in conjunction with encephalitis, the fainting spells and dizziness which often precede epilepsy, the overactivity of the hyperthyroid, and the marked withdrawal of these with incipent mental disorder.

She should know when to seek and how to coöperate with medical advisors, know when and how to approach parents to achieve the greatest degree of coöperation, plan for a long-range maximum social adjustment for the child, and be familiar with the most effective sources of material pertaining to nervous disorders.

The children with nervous disorders in the schools today present one of the greatest challenges recognized by workers in spelial education. Little scientific knowledge is available regarding the causes and treatments of some of the disorders,

but there is still much that the classroom teacher can do by way of affording a healthy and sympathetic environment for the children with whom she comes in contact each day.

By coöperating whole-heartedly with the parents of all the children and utilizing to the fullest the community resources at hand, the classroom teacher can make a major contribution to an adequate and worthwhile program of special education and prevention.

The nervous disorders to be surveyed here are: post-encephalitis, epilepsy, glandular disturbances, and extreme nervous irritability.

Post-Encephalitis

Definition and Description

The term encephalitis means inflammation of the brain, encephalon being the Greek word for brain. Various names have been given to this acute infectious disease: encephalitis lethargica, epidemic encephalitis, and type "A" encephalitis.

The cause of the disease is unknown, but medical suppositions center on two organisms: a bacterium similar to the streptococcus and a filterable virus.[1-1]

Bond and Appel,[1-2] Kanner,[10-1] and Schroeder[17-1] present like descriptions of the symptoms of the disease. They all mention fever, vomiting; headache; double vision, crossing of the eyes, or sudden blindness; twitching of the muscles; and peculiar sleep rhythms which include reversal of the sleep cycle, general lethargy, and in some cases, insomnia.

The diagnosis of encephalitis is often very difficult to make because of the symptom similarities with other diseases such as meningitis, influenza, typhoid, tetanus, hydrophobia, cerebral hemorrhage, and cerebral tumor.[10-2]

Another factor which serves to complicate the diagnosis is the inconsistency of the symptoms. Often times encephalitis is present in conjunction with other illnesses but at the time is not recognized. Diseases which are sometimes present in combination with it are: measles, mumps, influenza, whooping cough and scarlet fever.[10-3]

There is no definite accepted treatment for the disease and there are no valid measures for control because the method of contagion is still unknown.[9-1]

Frequency

According to the table of *Deaths from Selected Causes*, Bureau of Vital Statistics, 1945, Austin, five of the twelve deaths resulting from epidemic lethargic encephalitis were among persons under twenty years of age. One was in the age group from five to nine, two ranged in the age between ten to fourteen, and the other two from fifteen to nineteen.

Using the findings in Bond and Appel[1-3] and the number of deaths of persons under twenty years of age, the following approximate estimates may be made: Forty-two persons under twenty years of age in Texas had encephalitis in 1945. Of these it is estimated that five died, thirteen recovered with no ill effects, and twenty-four developed behavior sequelae.

Children and adults are equally susceptible to the disease. There are records of cases in infancy and senescence. There is a higher frequency in males than females and healthy robust individuals seem most likely to have it. Infants tend to suffer mental retardation after an attack; children of school age, six to thirteen, most often develop behavior problems; while adults are frequently afflicted with Parkinsonism, mask-like face, stiff gait, and coarse tremors of hands and voice, as sequelae of the disease.[10-4]

Behavior Patterns and Physical Distinctions

Post-encephalitic behavior problems develop in about two-thirds of the children who have had the disease after infancy. The personality changes may appear immediately after the illness, but many times there is a free period of months or even years.[1-4]

In numerous cases of post-encephalitic behavior, there is no record of the acute disease, but there will usually be a history of some common childhood ailment with accompanying encephalitic symptoms.[17-2] For example: A child's record shows no illness diagnosed as encephalitis but there is a history

of measles with headaches and double vision. Such data regarding the child's past illnesses are extremely important in accurate recognition of post-encephalitic behavior. The information may be obtained from the child, the parent and the family physician.

Schroeder,[17-3] Schilder,[16-1] Slesinger,[18-1] Kanner,[10-5] and Bond and Appel[1-5] present the following behavior picture of the post-encephalitic children. They become disorderly, disobedient, moody, overaffectionate, impulsive, destructive, extremely irritable, restless, brutal, emotionally unstable, over-talkative, explosive, uninhibited, unable to get along with other children, hyperactive, unable to stay with any task until it is completed; lie, steal, cheat, run away, use obscene language, commit sexual offenses, and have temper tantrums.

Among the prevalent and outstanding physical characteristics of some post-encephalitic children are: failure of the pupils of the eyes to adjust to accommodation and light; muscular tics, frequently centered around the eyes; excess salivary secretion; rapid gain of weight; and respiratory spasms, spells of rapid breathing unrelated to exertion.

Treatment

Kanner[10-6] in his *Child Psychiatry*, says that for these children public school routine is impossible, for they are stubborn, inattentive, unable to concentrate. Their moods of cruel inconsideration for others alternate with those of tenderness and abject apology, and sometimes paranoid trends are visible in their behavior.

Since they cannot be adequately fitted into the school situation, the problem of the teachers is to see that they are recommended and referred to proper medical authorities.

Texas has no guardianship provision for post-encephalitics unless they fall in one of eight prescribed categories of children who are wards of the State:[3-1] children under probate; children of parents seeking a divorce; children for whom there is filed a writ of habeas corpus; children given in adoption; *dependent*

and *neglected* children; *insane* children; feeble-minded children; and children who are epileptic. There are no statutory provisions specifically for the care of post-encephalitics.

The four child guidance clinics in the State furnish aid in giving diagnoses. These clinics are located in Galveston, Houston, Dallas and El Paso.

A child over the age of fifteen suffering from behavior difficulties as a result of mental and nervous disorders may be admitted to the state hospital in his region. The hospitals are in Austin, Terrell, San Antonio, Rusk, Wichita Falls and Big Spring.

Post-encephalitic cases are treated through the acute illness at the Children's Hospital, Galveston and are discharged as soon as they have reached a convalescent stage such that they can be cared for at home or by some other institution. The Stewart Convalescent Home, which is not yet in full operation, may care for convalescent post-encephalitics. These children are also accepted by the privately owned Brown Schools in Austin and San Marcos.

Epilepsy

Definition

For centuries the word *epilepsy* has carried the suggestion of mystery, fear and dread. Although modern medical science does not understand its causes, a great deal is known of its nature and treatment. Epilepsy, the Greek word for seizure, is "a symptom in which there are recurring lapses of consciousness, with or without convulsive manifestations."[11-1] The lapses may vary in frequency and severity.

For the patient it is a state of continuing dread, usually shared by his friends and family, interrupted by recurring attacks of involuntary behavior.[4-1]

The diagnosis of epilepsy today is less frequent than it was, for it is realized that an occasional convulsion, or even a series of fits in infancy, may indicate only a temporary disturbance of general health.[13-1]

There are at least four classes of epilepsy: grand mal; petit mal; psychomotor attacks or epileptic equivalents; and Jacksonian epilepsy. Grand mal is the general convulsion in which a warning or aura, is experienced in one-fourth to one-half of the cases. This may be muscular twitchings, pain, disturbances of sensation, unpleasant odor, or flashes of color. Unconsciousness develops quickly, whether or not there has been an aura. The patient, if standing, drops; the body becomes rigid; the face grows congested and livid; but though life may seem almost at an end, the muscular spasm relaxes and breathing is resumed. Then the patient's muscles twitch and he thrashes back and forth until apparently exhausted. After a deep stupor, he regains consciousness but may be dull for some time or suffer from a headache.

The petit mal attacks last from a few seconds to half a minute and a wide variety of symptoms may be experienced. In the midst of doing something the patient's mind goes suddenly blank and he sits or stands pale and motionless. When the attack passes, he resumes experience of activity where he left off.

In psychomotor attacks, the patient, without apparent change in the muscular system, develops a confused condition in which he may be forgetful, irritable, and possibly destructive. These attacks are of varying duration.

In the type of epilepsy known as Jacksonian, convulsions begin at one extremity of the body and spread upward from hand or foot. The patient retains consciousness, and can watch the jerking and feel the numbness creeping upward. If it spreads to the other side of the body, consciousness is lost and the attack becomes grand mal.

Incidence and Frequency

The true incidence of epilepsy in the general population is not known, but there are as many known cases of epilepsy in the United States as there are active cases of tuberculosis or diabetes.

In a study of 2,000 clinic or private patients of all ages having convulsive seizures, Lennox[12-1] gives the following fig-

ures on the types of seizures most common: grand mal occurred, with or without another type, in 90 per cent of the patients; petit mal in 45 per cent; and psychomotor seizures in 8 per cent.

As to time of seizures, a study of 1,500 patients revealed that 40 per cent of the cases had attacks either night or day; 36 per cent only in the daytime; and 15 per cent only at night.[12-2]

Epilepsy begins most often in childhood, and two danger periods being the first two years of life and during adolescence. The earlier in life attacks begin, the greater the part played by heredity in the cause of the disease. The peak age onset for seizures is thirteen in girls and fourteen in boys. The frequency of seizures is about the same in the two sexes.

An estimate made by the Texas Child Welfare Survey, 1930 gives a total number of at least 2,400 children under the age of twenty years in Texas who suffer from some form of epilepsy.[3-2]

The Abilene State Hospital, under the direction of the State Board of Control, is the only state institution for the care of epileptics. In 1934, 1,327 patients received treatment there. Two-thirds of these were less than thirty years of age. In September of 1935, 1,088 patients were being cared for at the hospital. According to Dr. Bruce Allison, present superintendent of Abilene State Hospital, there are, at this time, 218 children of school age, 91 of which are attending classes in a school conducted for them. Dr. Allison states that some of the 218 children are feeble-minded, and some are paralytic; a very small percentage of them have normal intelligence.

Of the 741 epileptic children reported to the census enumeration of Texas in 1930, 75 per cent were Anglo-American, 20 per cent were Latin-American, and 5 per cent were Negro.[3-3]

Commitment in Texas may be necessary where mentality is seriously impaired, where seizures are severe and frequent, and where the family may not be able to give reasonably adequate care. The County Court has jurisdiction over commitments.[3-4]

Causes

The United States Public Health Service divides the causes of epilepsy into two classes: *organic*, in which the attacks are related to specific physical causes such as damage to the brain at birth, brain tumor, syphilis of the nervous system, encephalitis, meningitis; and the *functional*, in which the causes may lie, for instance, in fever, lack of blood sugar, arrest of circulation, etc. This group includes many cases in which no definite cause has been found and are often called idiopathic.

Heredity seems to be an important factor in the development of epilepsy, since certain families have several members exhibiting unique brain activity, a cerebral dysrhythmia,* which often is associated with epilepsy.[12-3]

Characteristics and Symptoms

Some of the most common characteristics and symptoms that the teacher may observe in epileptics are unreliability, tendencies to violent responses, irritability, outbursts of temper for no apparent reason, self-centeredness, repetition, fanaticism, and in some cases, mental deteroriation.[11-2]

Seeming characteristics of petit mal which are not likely to be true characteristics are indifference, moodiness, stubbornness, anti-social behavior, and lapses of hearing.

Treatment

In discovering the child who is in need of help, the teacher should secure as complete a background history as possible in order to know better and understand the subject of her observations. It is important to keep clearly in mind the several symptoms and characteristics of each epileptic type.

If several of these symptoms are observed and epilepsy is suspected, the family and their physician should be consulted at once. The physician should be able to give a thorough

*A cerebral dysrhythmia is a condition in which there are disordered electrical currents of the brain. It is believed that a dysrhythmia of brain waves is present in all but a small per cent of persons having seizures.

medical examination and diagnosis. Expert advice may be available at the Children's Hospital, Galveston, Texas.

The teacher, physician, and family of the patient must work together to minimize influences acting on the patient's brain to provoke seizures. The epileptoid should be given an unemotional, uncritical understanding by the teacher.

If the child's seizures become chronic, he should be made aware of his condition by some reliable person who is capable of adjusting the knowledge to the age of the child in question.

The teacher should try to stimulate the child's courage and coöperation by a display of frankness and reason and attempt to erase from his mind any feeling of stigma because of the disease. The teacher can do much to help members of the child's family to regard him and his infirmity with the proper attitude. Both physicians and teachers can help the family in the development of these attitudes by making available to them materials on the subject of epilepsy. Some excellent pamphlet literature of this type published by the American Epilepsy League, 50 State Street, Boston 9, Massachusetts, is free upon request.

Edith M. Stern, Good News About Epilepsy.
W. G. Lennox, The Epileptic—Who He Is, What He Can Be.
Mrs. Brooks Potter, Building a Future for the Epileptic Child.
Herbert Yahraes, Woman without Fear.
W. G. Lennox, Marriage and Children for Epileptics.

Another pamphlet which is also free: T. J. Putman, Convulsive Seizures, J. B. Lippincott Company, New York, 1943.

The patient should have a reliable and understanding companion on the playground, walking in traffic, and riding to and from school on the bus.

In the classroom the epileptic child should be kept busy with work that is meaningful and interesting and not too difficult. Lennox[12-4] finds that fewer attacks occur when the mind is employed. It would be wise to give mental, aptitude, and personality tests in order to help the teacher to determine the special program for the child.

In range of intelligence, epileptics are similar to the general population, but their mean intelligence quotient is lower than that of the general population. Pintner, Eisenson and Stanton[14-1] find their average I. Q. ranging from 65 to 88, but this average may be somewhat depressed as most of these reports were based on institutional cases.

If a child is in school who is subject to major convulsions, it is well to have a cot or mattress available. During a convulsion the patient should be placed on his back with some soft object, such as an eraser or a handkerchief in his mouth, to prevent his chewing his tongue. Needless to say, the child suffering from an epileptic seizure should be taken from the classroom as quickly as possible. If the school has a nurse she should be called, and the teacher should either take the child to the physician or suggest that the parent do so. The coöperation of the teacher, physician, and the patient's family in every way possible, is necessary for the child's adjustment and recovery.

The physician may prescribe ketogenic* diet, dehydration,† or anti-convulsive drugs. In any case this may be supervised by the teacher.

Some preventive measures for precipitating conditions of epilepsy are: reduction in frequency of birth injuries; injuries to the head by traffic accidents; reduction of infections such as syphilis, meningitis, encephalitis, St. Vitus dance, and mastoid infections. If these contributing factors could be eradicated the danger would be greatly reduced in the general population and especially so in those who already have cerebral dysrhythmia.[12-5]

In a preventive program it is essential to know what symptoms may be premonitory of epilepsy, such as isolated convulsions occurring in children in association with acute gastric upsets. About twenty per cent of the patients whose seizures

*Ketogenic refers to a diet rich in fat foods, and poor in meats and starches, which results in the formation of ketone acids in the blood causing a reduction in frequency seizures.

†Dehydration means, in this case, a treatment whereby the ingestion of a minimum amount of water, either in the form of fluid or food, is required.

began at puberty or later had an isolated convulsion as an infant.[12-6]

Other suspicious symptoms such as periods of dizziness, night terrors, enuresis, repeated fainting, and sudden spasmodic muscular jerks should be considered if the person has a bad family history of epilepsy or serious warning symptoms.

The electro-encephalogram is often used to decide on the epileptic nature of seizures.[12-7] In the June 3, 1946, issue of *Life*, the electro-encephalograph is described as an apparatus by which the electrical pulsations of the brain can be amplified a million times, after being picked up from the scalp, and can be made to write a line on moving paper. This type of test is not difficult to administer and is not hard on the patient. Small metal tags are pasted to his scalp; then he sits quietly with eyes closed in an easy chair for fifteen minutes while his brain makes the necessary electric brain record called the electro-encephalogram. The pattern of the record, height and weight of waves, seems to present a picture of an inborn mental characteristic.

Of the three most common drugs; bromides, phenobarbital, and dilatin sodium; the last mentioned is the newest and most effective in controlling seizures. This effectiveness may be best emphasized by the following case history given in June 3, 1940, issue of *Time*.

At the age of four a child fell down the cellar stairs, banged his head against the floor, and was knocked unconscious for a few minutes. Two years later he had an epileptic fit and had to leave school. For seventeen years following the first seizure he continued to have severe convulsions, sometimes as many as eighteen in one day. He grew up with a man's body and a child's intellect.

At the age of twenty-three he was taken to a neurologist who discovered that his mental age had not progressed since he left school at six. He was given daily doses of dilantin sodium and within three days, the seizures stopped. He was then sent to live with a psychologist and a tutor, and in six months his progress was astounding. His mental age leaped from six to ten years; he raced through his first readers in

three weeks and taught himself the multiplication tables without assistance. He learned to play ball, badminton, card games; dressed himself for formal dinner parties; and played gently with very young children.

His case of rapid recovery is unparalleled in psychiatric history. The hope of the future for the epileptic is medical research and its goal is eradication at the source. The evidence that the predisposition to seizures is fundamental and the fact that this predisposition can be measured by electrical means makes eugenics a possible frontal attack. In plans for marriage and for having offspring, electro-encephalograms should be made for all, and these records, together with any history of brain injury, should be considered and given due weight.[12-s]

Teachers should assume their share of responsibility in preparing these children to live useful, independent, well-adjusted lives by providing the proper vocational guidance that will best equip them for occupations in which they may become most successful.

With reference to vocational guidance, in a pamphlet by Lennox and Cobb,* we find three classes of vocations closed to most persons subject to epileptic seizures. These are occupations that might endanger the lives of others; those that might injure the patient or the machine; and others that arise from popular reactions and prejudices to the stigma attached to persons with epilepsy.

In all cases vocational advice must be fitted to the individual, taking into consideration the frequency and types of seizures and the probability of successful medical treatment.

Until society has the courage or intelligence to use every weapon available to fight epilepsy, teachers, working with physicians, families, and friends of these unfortunates, must not leave one of them uncared for.

Endocrine Glands

Children sometimes suffer from nervous disorders caused by the improper functioning of the endocrine glands. There are

*Lennox, W. G., and Stanley Cobb, The Employment of Epileptics. Published by the American Epilepsy League, Inc., 50 State Street. Boston 9, Mass.

six endocrine or ductless glands in the human body: the thyroid, pancreas, adrenals, parathyroids, sex glands and pituitary.

The thyroid gland, located in the lower front of the neck, controls the body metabolism. Hyperthyroidism, or an excess of thyroxin from the gland, produces marked over-activity, prominence of the eyeballs, and extreme excitement often confused with functional nervous disturbances. The usual treatment prescribed for hyperthyroidism is surgery. On the other hand, hypothyroidism, resulting from insufficient thyroid gland secretion, is characterized by pronounced apathy, coarse texture of the skin, and a bloated and swollen appearance of the face, arms, and legs. The treatment usually suggested by the physician in these cases is the administration of thyroid tablets.[8-1]

The pancreas, located just beneath the stomach, produces a vital body secretion known as insulin. A lack of this substance in the body will cause diabetes. Great care must be taken in the treatment of diabetes with insulin injections, for sometimes extreme nervousness and lack of muscular control will result.[8-2]

The adrenal glands, one on top of either kidney, secrete an invaluable harmone known as adrenalin. The adrenal glands are stimulated by the sympathetic nervous system. When one becomes angry or afraid, when he needs to fight or run, adrenalin is injected into the bloodstream enabling the body cells to convert food and oxygen into fuel at a more accelerated rate of speed. An oversecretion from these glands often produces high blood pressure and hyperactivity. A deficiency of adrenalin may cause Addison's disease. This condition may be remedied by the use of adrenalin taken from animal adrenal glands.[8-3]

The parathyroid glands, located at the edge of the thyroid, control the amount of calcium and phosphorous in the blood. Inactive parathyroids often cause tetany, a disease characterized by frequent muscular spasms, especially in the hands, arms, legs, feet, and sometimes in the larynx.[8-4]

Mental, physical, and emotional disorders often occur as the result of malfunctioning of the sex glands in both male and female. A physician's diagnosis and treatment would be imperative in cases of this sort.[8-5]

The pituitary, found just below the brain and in front of the ear, stimulates the growth and activity of the other endocrine glands. Failure of this gland to become activated retards or almost completely hinders bodily growth and development.[8-6]

Summing up the materials of this section it becomes evident that the behavior disorders of these children which constitute the school problems cannot be corrected without medical treatment.

Extreme Nervous Irritability

The *nervous* child may be the child most in need of treatment. Often when there is no physiological basis for the reaction tendency, he may be classified as anti-social, mean, or impossible.

Too often teachers, parents, and social workers cannot come to the realization that the mind may be sick as well as the body, hence the reason for so much neglect of the nervous deviant. It is the duty of society to come to the rescue of all of its members who are in need of its services and sympathetic understanding. Statistics point to the fact that one out of every nineteen person will, during the life span, occupy a bed in a mental hospital.[19-1]

Cases of extreme nervous irritability fall into the following classifications: moodiness, violent behavior, over activity, and extreme anxiety.

Children may exhibit dual personality symptoms which point to more serious mental and emotional disorders, possibly schizophrenia.

All nervous children have characteristics in common: malnutrition, excessive perspiration, capricious appetite, car or

train sickness, marked excitability, violent behavior, disturbed sleep, enuresis, conflicts with those in authority, unreasonable fears, and the tendency to panic in traffic or close places.

More serious symptoms are: uncontrolled imagination, hallucinations and delusions, loss of self-respect, and speech disorders, especially stuttering.

Some of the basic causes for unfavorable nervous reactions are: over-protection, look for over-protection patterns formed before entering school; failure to measure up to expected standards;[15-1] and lack of proper occupational outlets. The child may not have had sufficient activity to use his surplus energy, thus building up mental pressure and tension which, in turn, produces restlessness and irritability.

The teacher may find the following suggestions helpful in her work with the nervous child: counsel with the parents concerning eating and sleeping habits and possible therapy for the child; encourage the child in the things that he can do well and help him in the tasks he finds difficult; keep in close personal contact with the child and his work; watch for too rapid or abrupt changes in discipline, increased freedom, or neglect; and gradually bring him back to normal reaction patterns.

In treating the moody child many of the above suggestions may be applicable. Special emphasis should be placed on the breaking down of fear complexes. The child's contacts with other children should be gradually increased and he should be provided with plenty of supervised recreation within his energy level. The academic work should be up to and within the level of the child's mental capacity.

The child who exhibits violent behavior tendencies or is extremely active may be a very tired child. Nervous fatigue may cause over-activity; poor sleeping habits may cause fatigue. No child is ever really violent without a cause. If violent behavior becomes frequent, a thorough medical examination should be provided. A child should never be allowed to realize his desires by means of violent behavior.

The over-anxious child should be encouraged to assume greater independence. The parents of this sort of child should be interviewed in an effort to discover any nervous tensions which they might exhibit and also in order to discuss with them the dangers of divided or split discipline. It is possible that the child may have become the center of unfortunate interest.

Reëducation would be the best possible treatment for this type of nervous disorder. Parents and teachers should coöperate to give the child an emotionally stable and consistent environment.

According to Bleuler[2-1] and the Encyclopedia of Child Guidance,[6-1] schizophrenia is a mental disorder involving a split or dual personality. Characteristics typical of this disease are: an almost completely diminished interest in one's environment; speech and sleep disorders, marked and increasing lack of self-respect, extreme sensitiveness to defeat, censureship, or any kind of reprimand; no sense of humor. The schizophrenic child makes his social adjustments by means of withdrawal from the group.

The causes of this malady are unknown, but Bradley[2-2] states that there are some possible factors that contribute to and promote this psychotic condition. Heredity plays a major role in cases of schizophrenia occurring in childhood. Other probable causes are extreme fatigue due to over-application to study and the emotional problems of precocious puberty.

Schizophrenia is very rare in children younger than ten years of age. Figures of incidence are not available due to the absence of standard limits of this age. When cases are reported from clinic to clinic or from other reliable sources, the workers tend to report the incidence of psychoses in general, instead of schizophrenia in particular. Only a very few children younger than two and one-half years of age have been reported as schizophrenic.[2-3]

Sakel[15-1] and Day and Niver[5-1] state that insulin given in over dosages has been more successful than any other drug in the treatment of schizophrenia. Statistics show that eight out of ten recover or improve if they are treated at least six

months after the onset of the disease. Seven out of ten recover or improve if they are treated within eighteen months. This treatment, when applied to children, must be very carefully administered and limited.

Bradley[2-4] suggests that if a child's surroundings are made attractive, habits of forming personal and group contacts are established, and a willingness to meet one's own problems is instilled, great progress will probably be evident in the child's behavior. The classroom teacher can do much to stimulate and draw out the pre-psychotic child by furnishing him a healthy and interesting environment.

Figures of incidence and recovery will remain unreliable if diagnostic criteria do not become firmly established. Numerous studies have been made of this disease and some reports show cases of recovery, but the general prognosis of childhood schizophrenia at present remains grave.[2-5]

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CHAPTER VIII

Other Exceptional Children

TEACHERS, I AM IMPORTANT, DON'T LEAVE ME OUT! The state may not pay for extra help for me but I am found in every grade and school. Help me solve my problem, too!—other exceptional children.

Thus far in this handbook attention has been directed primarily to children with physical handicaps. In this chapter four additional classifications are discussed: the mentally deficient, the mentally gifted, children who work part-time, and children who are socially maladjusted.

The mentally deficient and the gifted are in distinct categories, but children at either end of the ability scale may be employed part-time or may become socially maladjusted. Children who work may be socially maladjusted because they have to work, as a result of working, or for reasons totally unrelated to their employment. A child could be in three of the four classifications, or he may be perfectly normal from the standpoint of the school and be exceptional for the sole reason that he devotes part of his energies and some of his time to gainful employment.

All four of the classifications should have the consideration of teachers, the mentally deficient need help in capitalizing on whatever socially useful abilities they may possess. The gifted deserve to have their talents recognized and respected so that their full capacities can be developed and channeled into activities from which civilization may be improved and enriched. Children who work should be guided and supervised so that their experiences in business or industry are helpful to them. The socially maladjusted children will get too much attention if his behavior symptoms are bothersome to the teacher, but he may go unnoticed if he is withdrawing and does not participate in the usual activities of the school.

Tests, records, and observations are the means for locating these exceptional children. The interest of school personnel in the out of school as well as the in-school life of the child

will pay big dividends in understanding and in increased opportunities for guidance.

Mentally Deficient

Mental deficiency may be defined as social incompetence due to arrested mental development resulting from organic causes.[15] It can be determined on the basis of low scale of intelligence and social and industrial inefficiency. The classification of the mentally deficient for public school use is as follows: (1) idiot, an institutional case, of I. Q. below 25; (2) imbecile, preferably an institutional case, of I. Q. between 25 and 50; (3) moron, a public school problem, of I. Q. between 50 and 75, and a mental capacity for learning up to the fourth grade or fifth grade level.[6]

One of the primary steps in determining mental deficiency is by means of the individual intelligence test. But mental tests alone are unreliable for classifying these individuals. Materials such as the Vineland Social Maturity Scale have been standardized to distinguish between mental retardation with social incompetence or mental deficiency, and mental retardation without social incompetence.[7] The senses of the mentally deficient are not as acute as those of a normal child; their degree of attention is less, and they are shorter on the average, and lighter than the normal child.

Incidence

Martens[20] quoted Terman, and Merrill who said that from 2 to 5 per cent of the juvenile population can be regarded mentally deficient with I. Q.'s below 78. This means an average of one in every class. Boys outnumber girls in the ratio of about two to one in special classes for mentally deficient.

Treatment

The best that can be done by teachers for a mentally deficient child is to prepare him for adult life by making the most of any socially useful quality which he may possess. The public school must assume the responsibility for the higher grade mentally deficient. It should study the child

and provide for him pre-vocational, habit and social training, and occupational programs together with such academic work as he can profitably undertake.[18] The school should determine whether the child can stay in the regular classroom or whether he should be placed in an opportunity group. If he is left in the regular classroom, methods and materials should be adapted to his needs. Otherwise, he will be daily tormented by his sense of inferiority in all situations which may arise in the classroom.

Instead of trying to make a mentally defective child do the work that is beyond his ability, see to it that he is complimented in all his efforts. The teacher usually has to convince the parents that the child's happiness and success in school are far more vital than an attempt to force him to conform to the achievements of other boys and girls his own age. This is especially true when the teacher feels that a child has to be placed in a special class. The parents should be informed that special or opportunity classes are established to provide the type of training to bring out all the capacities of the child; in them he finds associates with whom he can play and be happy; assignments at which he can succeed provide a sense of satisfaction which will encourage him to persist in his daily tasks; the purposes of such classes are to prepare the child academically, vocationally, and socially.[21] If a child shows enough improvement in a special class so that there is a possibility that he may do standard work, he should be transferred to regular grades.

Mentally Gifted

The next groups to be considered are situated at the opposite end of the ability scale. They, the generally gifted and specially gifted offer the greatest returns on a program of special education. Because their abilities and talents so often go unrecognized, society loses much of its human resources that could be conserved and developed.

Definitions

These children may be placed in three different classes: the generally gifted, specially gifted, and those showing distinct qualities of leadership.

In a public address, Dr. Elise Martens defined the generally gifted as, ". . . the one who has an exceptional intelligence which finds expression in high levels of creative thinking and reasoning."

Heck states,

> . . . the term 'gifted child' refers to a child of high intelligence quotient. Such a child may at the same time have some other special ability; this latter is not, however, a prerequisite to classifying him as gifted. Regardless of how talented a child may be along a particular line, if he does not have a high intelligence quotient, he is not considered gifted in the sense in which the term is used here.
>
> . . . .
>
> Included among the specially gifted are those artistically inclined, those with mechanical talents, and those with a flair for writing either poetry or prose.[13-1]

Bentley lists the following characteristics of leadership: physical energy, nervous stability, intelligence, endurance, imagination, knowledge of human nature, technical knowledge, social-mindedness, interest, sympathy, liking for people and tasks, and enthusiasm.[3]

With reference to the specially gifted or talented, it should be the goal of teachers to see that the overlooked or neglected get a better opportunity in life by creating situations whereby they might make contacts which will provide means of developing and broadening their talents.

Society has an asset in the genius. Advancement in scientific, industrial, and artistic fields as well as social development depends largely on special care for the talented. If opportunities are granted the genius in literature, sculpture, painting, and music, society gains in culture, happiness, beauty, and contentment.

> Too many children spend their time in the usual commonplace school which was not planned for them, which cannot be fitted to them, which often stunts their abilities, twists their personalities and limits their use-

fulness to society. It is often found that the pupil has been bored with unnecessary drill or disillusioned and disheartened by the sheer stupidity of a teacher. Sometimes the child is found to be just plain lonely for a friend to whom he could talk and be understood. The demands upon his intelligence are so light that he may become intellectually lazy and unwilling to cope with real problems when they challenge him. The origin of many able misfits, those sad souls who never pull their weight in this world, goes back to a classroom, the unsympathetic teacher of which came to mean all authority, all organized society.[17]

Influencing Factors

It follows that general factors cause or influence the gifted. They are heredity and environment with specific intrinsic and extrinsic factors determining to some degree the eminence to be attained.

. . . the intrinsic factors are: ambition, drive, health, physical size and appearance, race, fluency in speaking or writing, singleness of purpose, ability to get along with people, and character. The extrinsic factors are: economic status of family, size of home town, marriage, age and manner of death, strength of competition, nature of interest, and period of activity.[4]

A child, inheriting great intellectual abilities, may never realize his possibilities because of poor environmental conditions. The importance of the role of environment in releasing or in confining ability should challenge to action those with whom the gifted child comes in contact so that great mental capacities will not be wasted through inadequate education or unsatisfactory home life.

Incidence

It is relevant at this point to indicate the actual number of gifted children in the United States, although it will vary according to the level set as differentiating the gifted from the normal. Some place the I. Q. as high as 130 while others have it as low as 110. Therefore, the number would vary from 100,000 to 1,500,000. If the last figure be accepted, the expected number would be 60 gifted in every thousand.

Hollingsworth[14] found that, according to teachers' judgments of leadership, those of high I. Q. are much more often leaders with the optimum range of I. Q. falling between 110 and 130.

The mental ages corresponding to their chronological ages are shown in the accompanying graph, assuming for the gifted the I. Q. of 133, for the retarded an I. Q. of 75. This is to show the increased and decreased ratio of the deviation from normal of the gifted and retarded as they grow older.

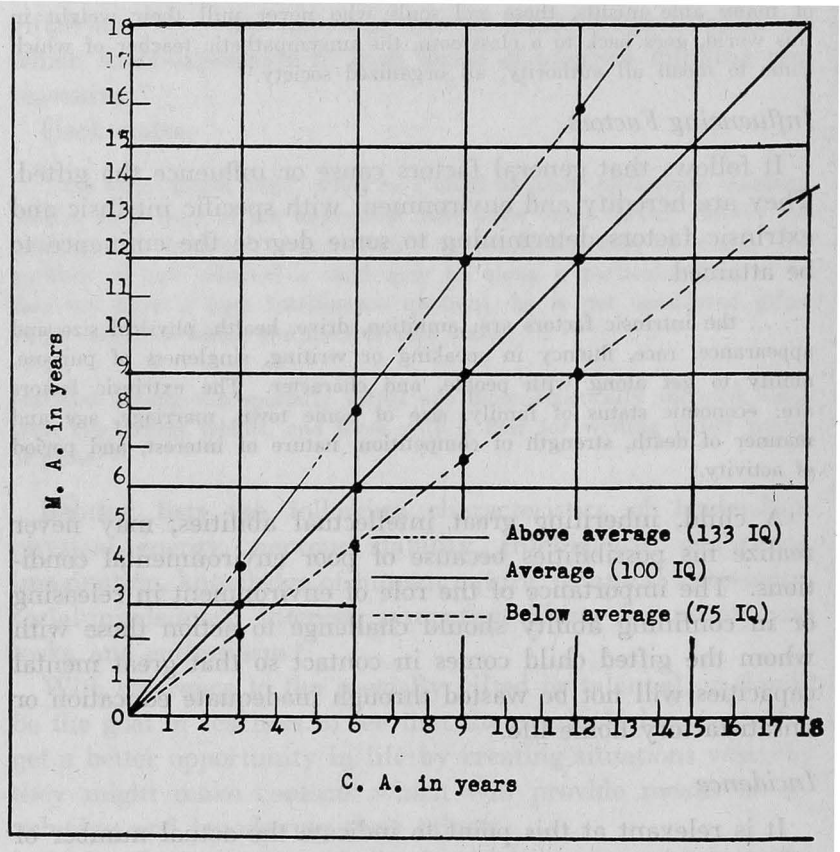

Fig. 1: Relative Mental Growth with Intelligence Quotients 75, 100, 133.

Discovery

There are several procedures by which the gifted child may be discovered or identified. Heck[13-2] has suggested that teacher recommendations, previous school marks, achievement tests, group mental tests, or combinations of these procedures may be used as a basis for discovering candidates for special classes for the gifted.

Zorbaugh[27] in his article on "How to Spot a Super Kid" has suggested that the observation of such characteristics as vocabulary, curiosity, independent thinking, imagination, physical development, creativeness, versatility, love of reading, and emphasis on reality is pertinent to the identification of gifted children. In observing children, the teacher should note and give full consideration to the ages of those being observed since as Terman has suggested, ". . . it isn't what children do or say, but the age—the exact age—at which they say or do them that indicates ability."[26] Teachers should guard against being negatively influenced by the child's irritating questions, his physical appearance, or by his misbehavior.

The opinions of parents are of great value in so far as the intimate and detailed knowledge of their own children is concerned. However, all information obtained from parents should be carefully weighed since parents are likely to be biased in their opinions.

It is characteristic of gifted children to prefer hard subjects for they are exceedingly studious, omnivorous readers, and thrive on projects leading to creative work, which is indicative of their interest in the abstract rather than the concrete.

Contrary to popular belief the gifted do not tend to be nervous, high strung, and underweight. These children, with few exceptions, enjoy good health to the same degree as the average. They have been misjudged because of their quickness of response, their alertness to challenging situations, and because of the fact that they are often advanced educationally and consequently smaller than the other children in their classes.

Education

After the gifted child has been found, the curriculum should be adjusted or adapted to his needs, interests, and abilities. The curriculum should be enriched by the addition of stimulating materials and by modification of teaching methods. The first responsibilities of teachers of gifted children are to,

"give the child room to grow—freedom to develop—incentive to make constructive use of his creative power."[19] With the teacher as guide, the children should be given more opportunity to carry on individual investigation. Gifted children need less drill, less easy reading material, and more challenging experiences than do average children. They may be challenged and stimulated by being assigned special projects. An enriched curriculum will permit the child to remain with his chronological age group, with rapid advancement taking place only occasionally.

A more enriched curriculum and one more completely adjusted to the needs of the gifted children is sometimes made possible by the segregation of the gifted children on a part-time or a full-time basis. The part-time plan provides that the gifted children be placed in regular classes for most of their work. Two or three times each week they meet in special classes in which their special interests are aroused and their special abilities are challenged. Segregation on a full-time basis permits even greater exploration of the needs and interests of the gifted child but deprives him of contacts with children of lower mental ability. The advantages of segregation lie not so much in the expectation of greater achievement in tool subjects as in the enrichment of experiences and added intellectual gains in specific fields studied.

When a gifted child is found, the teachers and the parents should coöperate in dealing with him and should have a definite understanding of his interests and abilities. They should recognize, without verbal emphasis, his superior intelligence by discussing matters with him in a manner respecting his own mental level. They should provide opportunities for initiative and responsibility but should remember that chronologically he is a child, socially immature and lacking in life experiences.

The greater the extreme of mental ability, the greater is the danger of social conflict. A program of recreation which will contribute to his physical, social and mental growth should be a definite part of the daily program of the gifted child.

To avoid the possible development of egotism, the child and his parents need to develop an appreciation for the accomplishments of other children. The contributions that each child can make to society should not be compared to the contributions of others but should be evaluated in terms of the abilities and potentialities of the child who makes the contribution.

Sources of Assistance

It is pertinent here that some mention be made of possible sources of assistance to teachers. Pamphlet No. 41, "Gifted Children," Teachers' Problems with Exceptional Children, may be obtained by sending five cents to the Superintendent of Documents, Washington, D.C. The teacher may also obtain helpful suggestions as to endowments and scholarships from interested persons in such organizations as civic clubs and Parent-Teacher Associations.

In conclusion, the conscientious teacher should find a personal challenge in the words of Stedman, "Does educational democracy necessarily mean the same education for all? Does it not mean rather equal opportunity for every individual to develop to the maximum of his capacity."[23]

Part-Time Employed Children of School Age

Definition and Description of Children Considered

This section relates to only those children who are legally employed during school hours, outside school hours, and during summer vacations. These children may be divided into the age groups designated by the Child Labor Laws of Texas, Fair Labor Standards Act of 1938, and the Compulsory School Attendance Law of Texas.

Incidence

It is difficult to determine accurately the number of children of school age gainfully employed. However, estimates based on available data indicate general trends and give a basis for the study of the problem.

According to Merritt and Hendricks,[22] there were employed in the labor force in the United States in 1940, 1,004,528 children from 14 to 17 years of age; this figure was increased to 2,900,000 in 1944 which was an increase of 190 per cent over the 1940 figure. During the same period, 1940–1944, the number of employed boys in this age group jumped from 733,506 to 1,950,000, an increase of 170 per cent. The number of girls increased from 271,022 to 950,000, an increase of 243 per cent.

The war, with its demands for increased production and its manpower requirements for the armed forces, rapidly decreased the number of unemployed adults and made more jobs available for school children. Child labor regulations were relaxed and many youngsters went from the school into industry. Increased child labor is to be anticipated during war years and decreased child labor during depressions.

Age Limits

In general, children considered in this report are 12 years of age and older; children from 12 through 15 years of age must secure a work permit from the county judge; children 15 years of age and older may work in occupations if they are not dangerous, but they must be 16 before they can work for firms which ship or deliver goods across state lines or to foreign countries; children 17 years of age and older may work in all occupations including dangerous occupations; children working for firms doing interstate or foreign trade come under Federal Regulations of the Fair Labor Standards Act of 1938.

Reasons for Part-Time Employment of Children

The probable reasons for part-time employment of children are: economic necessity, the belief that labor is good and idleness is evil, the desire of some children to earn their own spending money, and the belief of many school people that ". . . work experience should be a regular part of this general education, possibly during the academic year, preferably in the summer vacation. To work under business conditions is, toward the close of the high-school period, an essential part of

the shift from dependence of parent and home to the personal and financial independence of the maturing individual."[16]

Arguments have developed both favoring and opposing part-time employment of school children. Among arguments favoring pupil employment are that:

1. It builds self-reliance.
2. It helps the young person to learn how to work with others to achieve a common goal.
3. It helps him to learn about his own abilities.
4. It develops an appreciation and respect for work well done.
5. It assists him to understand the economic and social organization of his community.
6. Through volunteer activities a desire to be of service to others can be satisfied.
7. It often is a re-creative experience, developing skills and interests that can be used during leisure time.
8. It provides an opportunity to explore different types of work.[8]

In addition to the above the following arguments may be added:

9. The child gains work experience which will help him secure work when he finishes school.
10. Working for wages helps the child learn the value of money.
11. It provides worthwhile activity to help use leisure time.
12. It provides real life experiences which may aid the child in seeing the values of school attendance and study.

Arguments that point out the disadvantages of part-time work are:

1. Work of children is often not well supervised.
2. Child workers are not covered by compensation insurance.
3. Children are competing with adults for jobs which lower general standard of living.
4. Some types of work in which children are employed interferes with normal growth and development.
5. Some employers and parents exploit children.

6. Children in street trades are exposed to physical dangers, cold, heat, irregular meals, fatigue, traffic, and possibly immoral influences.

7. Children employed in seasonal agricultural pursuits work long hours with low pay and move often which interrupts or postpones their education.

8. Many occupations open to children are dead-end jobs.

9. Rigid curricula causes working children to miss important phases of their education.

Guiding the Child Who Works

Each child should be encouraged to remain in school as long as he is able to benefit from the educational opportunities offered. In many cases part-time work should be discouraged, particularly for younger children. However, part-time work is often necessary or will provide desirable experience for the child. When work is permitted it should contribute to the wholesome development of the child and should conform to legal regulations.

It should be the responsibility of the person or persons in charge of the work program to keep themselves informed about the latest child labor laws and compulsory school attendance laws; these regulations should be interpreted to the child, his parents, and his employer. Each case should be considered on its own merits. The advantages and disadvantages should be clarified for all concerned.

For work during school or outside school hours, each child should be required to secure from his school a work permit which gives necessary personal, legal, and occupational information about the child. See Appendix D for a sample work permit.

In elementary schools part-time work should be discouraged as much as possible. In some cases with overage pupils in the upper grades some work may be permitted. However, the work should be light and well supervised with short hours outside of school time.

In junior high school the requirements need not be as rigid as those in elementary schools. Work may be permitted as

long as desirable employment is available which will not interfere with the regular school work of the child and his normal development. Jobs selected should be outside of school hours or during the summer vacation.

More attention has been given high-school students in providing part-time employment. Programs have been developed which help the child secure suitable employment, give him school credit for part of the work, and aid him in selecting courses that will be integrated with his employment and his school work. Diversified Part-Time Coöperative Training in High School[5] is one such plan. This plan is limited to students 16 years of age and older who lack only two years of high-school work for graduation and is under the direction of a coördinator.

The work experience program should be expanded and developed to meet the need of high-school students. Local conditions will make necessary many modifications; the problem is local and should be worked out to meet the needs of the local community. Suggested characteristics of a good work experience program are:

1. The curriculum must be reorganized to place the work program on an equal basis with other school activities and to make provision for the integration of the student's learning experiences on the job and in the classroom.
2. All students should be expected to spend a specified amount of time at work. Just how long might be determined by the time required to become reasonably proficient at some kind of work. It also should be long enough to give the student an opportunity to have different kinds of work experience.
3. The school should assign students to jobs which are needed by the community.
4. Each student should have the experience of working for pay, and of working as a volunteer with an organization devoted to community service.
5. The student should only be assigned to work which is suitable for him on the basis of his age, health, and social, emotional, and physical development.

6. The responsibilities of the employer should be specified in a written contract with the school.

7. Proper staffing must be provided for the promotion, administration, and coördination of the various phases of the program.[8]

Sources of Help

State agencies located in Austin, Texas
- State Department of Industrial and Vocational Education.
- State Department of Education.
- State Department Bureau of Labor Statistics.
- State Department of Health.
- U. S. Department of Labor—Childrens Bureau.

Local agencies
- Trade Unions.
- County Farm Agent.
- Welfare Agencies.
- Chambers of Commerce.
- Service Clubs.

Socially Maladjusted Children

The term deliquency usually refers to extreme acts of misbehavior sufficiently grave to necessitate the attention of police and juvenile court authorities. Heck[13-3] refers to the socially handicapped as including children who are usually spoken of as truants or delinquents and those who are potential truants or delinquents. Since maladjustment is progressive unless remedial steps are taken, teachers should be interested in all degrees of social maladjustment, from the child with minor adjustment problems to the delinquent. In this report the term socially maladjusted has been used to include the entire range of behavior disorders.

Scope of the Problem

All children are faced with adjustment problems. Under favorable environmental conditions the problems are not usually serious and with proper guidance, sympathy, and understanding, the problem of adjusting to new situations is not usually difficult. However, reports showing the incidence

of children with serious behavior problems indicate that conditions are not always conducive to easy adjustment, and parents and teachers do not always give the assistance they should. According to an estimate by Baker,[1] 3 per cent of elementary school children are seriously maladjusted. She quotes Snyder as reporting that 6.9 per cent of the pupils in the Jersey City schools had behavior problems. Evidence of the fact that the problem of maladjustment is becoming more acute is presented by the Children's Bureau which reported that delinquency cases handled by 82 courts throughout the nation had increased from 64,000 in 1940 to 72,000 in 1942.[25]

Factors Contributing to Maladjustment

A seemingly sound method of attack upon the whole problem of maladjustment would be (1) to determine and isolate its causes; (2) to proceed with their systematic elemination; and (3) to inaugurate a program of rehabilitation of those who have already become maladjusted. However, the mechanisms of behavior are so complex that one could never be certain that the cause of a particular case of maladjustment had been found. There is, however, some agreement that certain factors are likely to contribute to the maladjustment of children. The extent to which any one factor will affect an individual is likely to depend upon the age, sex, and the constitutional soundness of the individual, and upon the degree to which he is already adjusted or maladjusted.

Factors which may contribute to the maladjustment of children may be outlined as follows:

I. Unfavorable home conditions.
   1. Broken homes.
   2. Friction in the family.
   3. Poor disciplinary practices.
   4. Undesirable physical surroundings.
   5. Economic insecurity.
   6. Extreme prejudices.
   7. Anti-social and uncoöperative attitudes.

II. Unfavorable community conditions.
   1. Lack of civic-mindedness and spirit of coöperation.
   2. Poor attitude toward law enforcement.

3. Presence of immoral influences.
4. Unfavorable health conditions.

III. Unfavorable school conditions.
1. Poor attitude of staff toward the functions of the school.
2. Harsh and rigid disciplinary practices.
3. Rigid examination and marking systems.
4. Lack of flexibility in the curriculum.
5. Inadequate program of guidance.

IV. Physical and psychological conditions.
1. Physical defects and abnormalities.
2. Low intelligence and mental abnormalities.
3. Defective or unsatisfied interests.
4. Sex conflicts.

The Place of the Teacher in the Prevention and Treatment of Maladjustment

The discussion of prevention and treatment has been limited to the role of the teacher in the elimination of maladjustment. Every teacher should recognize and understand the problem, develop an appropriate philosophy regarding it, and become aware of what she can do to promote satisfactory adjustment of pupils.

Umstattd has pointed to two main aspects of the problem of pupil adjustment in the school. "The first is the pupil's adjustment to the school, and the second is the school's adjustment to the pupil."[24-1] Teachers must, therefore, strive conscientiously to provide an environment to which adjustment is easy as well as help the child adjust himself to that environment. They must realize that children are in need of all of the understanding, advice, encouragement, and recognition that older people can give. They must understand that children are sometimes impelled to create disturbance to gain attention because they have failed to get attention and favorable recognition for successful performance at home or at school.

Elsbree[9] emphasizes the necessity of understanding such universal urges and cravings as (1) the urge for success, achievement, mastery, and the desire to avoid failure, frustration, and disappointment; (2) the craving for sympathy, affection, and intimacy; (3) the craving for recognition, approval, and admiration; (4) the craving for security, freedom from

physical want, a sense of possession, and a release from worry and anxiety; and (5) the urge for adventure, new scenes and experiences, exhilerating activity, and a change from monotony, dullness, and routine.

Teachers should make patient, tactful, and sympathetic attempts to understand the whole child. The child should be known personally, and through his cumulative record. Information should be available about his home and family background, his scholastic ability, his interests, his personality, and his plans. The teacher should know the child in as many situations as possible.

Every teacher should develop a positive attitude toward the problem of maladjustment. Hamrin and Erickson have defined a well-adjusted student as "one who is able to live effectively, to overcome his problems as they arise, or to face objectively his inabilities, and thus avoid the damaging effect of frustration."[12] With a positive attitude toward pupil adjustment, the conscientious teacher will study her practices related to such aspects of the school as curriculum, instruction, and discipline that they may be harmonized with the best interests of the child as interpreted by the teacher from her knowledge and understanding of the child, his situation, and his needs. In order to bring about a harmonious adjustment between the pupil and the school Umstattd[24-2] has suggested a "viewpoint of expression" as opposed to a "viewpoint of repression." The viewpoint of expression would consider the pupil first, stimulate creative thinking, develop, guide, encourage obedience, permit expression, and permit reason to rule. The viewpoint of repression would consider the subject first, demand verbatim learning, control, suppress, punish disobedience, enforce inhibitions, and establish rigid rules of behavior. The viewpoint of expression undoubtedly involves greater appreciation of the child as an individual.

In the prevention and in the treatment of maladjustment the teacher must be concerned with school, home, and community conditions which affect health. She must be concerned with the factors in the school, home, and community which contribute to mental unrest. She must help him know his

potentialities and recognize his limitations. Above all, she must know him and treat him as an individual.

While every teacher cannot become a specialist in analyzing maladjustment cases and in prescribing treatment, there are, nevertheless, some things which every teacher can and should do. Fahey wrote:

Every teacher in every classroom should be responsible for:

1. Aiding pupils to fix goals for themselves.
2. Aiding pupils to attain self-understanding by analysis of their own strengths and weaknesses.
3. Developing in pupils desirable habits in the field of mental and physical health.
4. Developing character and moral attitudes and habits.
5. Allowing pupils to experience the joy of success.
6. Aiding pupils to adjust to school and community life.
7. Developing in fellow-teachers, in pupils, and in others favorable attitudes toward atypical children.
8. Setting clearly defined by flexible standards of work.
9. Detecting and preventing failures in the incipient stage.
10. Avoiding teaching procedures which inhibit adjustments.
11. Making patient, tactful, and sympathetic attempts to understand each pupil and his problem.[11]

Based on the assumption that the teacher should work coöperatively with the students and assist their efforts to grow in self-control and self-direction, Edmonson and his collaborators have suggested that teachers check their disciplinary practices in terms of such proposals as the following:

1. Set a good example as a teacher in matters of honesty, fairness, courtesy, kindness, orderliness, industry, and reverence.
2. Create many opportunities for students to coöperate in activities for the good of the school or class.
3. Plan to use the surplus energy and initiative of students in directed playground activities, school assemblies, and other kinds of coöperative undertakings.

4. Routinize many matters of class management, such as taking the roll, collecting and distributing papers, inspecting desks, arranging illustrative materials, and adjusting shades.

5. Remove or modify conditions that cause disciplinary problems.

6. Cultivate the kind of morale that will cause students to show disapproval of misconduct by associates.

7. Create a spirit of success among the students in a school or class.

8. Give definite instruction in matters of courtesy and good sportsmanship.

9. Emphasize the rewards, honors, and merits of good conduct rather than the penalties of misconduct.

10. Treat all students in a kindly, impartial, and considerate manner.

11. Organize the work in such a manner as to keep students busy with profitable tasks during every minute of the school day.

12. Make *early* the few rules needed for the smooth running of the school or class.

13. Make the punishment of a student an individual matter. Do not punish the group for the misconduct of the individual.

14. Expect from the students a fine type of conduct, but prepare for occasional disappointments.[10]

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CHAPTER IX

General Educational Procedures and Recommendations

Many of the techniques and procedures essential to the efficient functioning of the special education program may be recommended for inclusion in the services given to all pupils in the school. Among the educational procedures recommended for all pupils are the following: First, every pupil is entitled to continuous individual study from the time he enters school until he has left with a cumulative record showing his progress. Second, many pupils can be handled in regular channels and kept out of the special education program through constant efforts to improve teacher-pupil relationships. Third, home visitation is recommended for the teachers of all pupils as well as for those in special education. Fourth, guidance is generally accepted as desirable for all pupils but its importance deserves reiteration. Fifth and finally, remedial instruction as indicated from child study records should be introduced early enough to have preventive values.

This chapter is devoted to an elaboration of these five topics listed in the preceding paragraph. It concludes with a compilation of recommendations made by the fifty-seven members of the workshop group.

Individualized Child Study

In the opening chapter of the Nineteenth Yearbook, The National Elementary Principal, "Meeting the Needs of the Individual Child," Frank S. Freeman says:[2]

> Until an individual has been studied, it cannot be said that he is or is not irregular in respect to this or that ability.
>
> . . . . . .
>
> Probably the chief conclusion to be drawn from the numerous investigations of individual differences of all sorts is that every individual considered is an integrated whole, is unique. There is no single psycho-

logical test or measure which will reveal the facets of an individual's personality, his ability in arithmetic, language, general intelligence, etc.

. . . . . .

To portray this uniqueness, more recent investigations have been employing the longitudinal method, in which the same individual is measured over a span of years in respect to each of a variety of traits. Thus, each individual's tempo and peculiarities of growth are portrayed.

After this is done, it is essential to organize all the facts regarding a given individual into a "case" and to attempt an interpretation of them in order to best understand how that person came to what he is.

Prescott says that:

At least four characteristic factors in the affective make-up of each child should be evaluated periodically and the results entered into the cumulative record of his development. These four factors are: the energy make-up of the child, the status of the child's personality needs, the patterns of affective behavior shown by the child under various circumstances, and the established attitudes and value concepts revealed by the child.[11-1]

The child's physical characteristics may include intelligence, rate of maturation, rate of growth, glandular functioning, quality of tissues, resistance to disease, muscular strength, the special senses, and body build.

The child's environmental background may include psychological complexity of environmental factors, special social influences, rejection, affection, belonging, likeness to others, and ego and integrative needs.

The only basis that an individual has for developing attitudes and formulating behavior patterns is experience. Then, if experience be only partial, restricted, and biased, the resulting behavior patterns must necessarily be inadequate to meet all aspects of life. The implication is that children need to be supplied with experiences as rich and varied as their environments can afford.

As experience accumulates and progressive symbolization supplies a core of meaning to life, the child gradually comes to recognize himself as a unique personality with distinctive characteristics. The gaining of knowledge, the development of skill in manipulating available material and energy for his own purposes, the achievement of wider and wider

social belongings, the winning of greater freedom to direct his own behavior, and the knowledge of his personal successes and failures—these experiences make it inevitable that a person will evaluate himself for what he is, will sense his own personal worth or the lack of it.[11-2]

The implication for education is

. . . the possibility of genuine re-education, to be accomplished by enriching and expanding the child's experience, by aiding the individual in the realization of worthy behavior goals, and by stimulating him to evolve new value concepts.[11-3]

Observation

A survey of all of the children in the school is necessary when the school decides to set up a program of Special Education. This survey requires the accumulation of many bits of information gathered by the classroom teachers. Information may be gathered by giving various kinds of tests, through teacher observations, and from visits to the homes of the children.

Direct observation is a most excellent way of gathering information about the child.[12-1] Such observations may be made in the classroom, or the playground, and in out-of-school activities (home and clubs).[6] The classroom teacher may observe the child in his school environment and the visiting teacher may observe him in his home atmosphere.

The personality of the teacher as observer is important. She must have a genuine interest in the child and his problem and be willing to spend much time in patiently seeking each bit of information that will help in solving his problem. The information that she gathers must be confidential.

The methods of observation the teacher may use are: She may check the child by the Detroit Behavior Scale. She may observe the child's classroom behavior and make anecdotal records over a long period of time. She may create a particular situation in the classroom and observe the different responses of the individual children in the class.

Regardless of the method of observation used there are certain essentials to be practiced in the procedure. First, the observation must describe the action or response exactly as it

occurred. Second, the teacher's opinion must be omitted. Third, if the same behavior has appeared before in a like situation it must be noted. Fourth, snap judgments must not be recorded. Fifth, observations should be made on both good days and bad days in order to get both sides of a child's behavior. Sixth, the classroom situation in which the observation is made must be recorded.

Anecdotal records are, in all probability, the best type for the survey. Their value is dependent upon the observation consciousness of the teacher and the accuracy with which she records them.[12-2] The successful use of these observations in helping the child to a better adjustment depends first, upon the teacher who studies him and second, the manner in which the child and his parents respond to the proffered aid.

Teacher-Pupil Relationship

By teacher-pupil relationship we mean the emotional relationship or "valence" between the teacher and pupil.

A teacher may be attracted to, may reject, or may be indifferent to a given pupil in this emotional relationship. The same emotional reaction may occur in pupils.

A teacher may know all the theories of the laws of learning, but if she can't look beyond the handicap of the child and recognize innate abilities, she will lose her opportunity for leading the child to the good life.

A good teacher respects every child, strives to understand every child, and believes that every child has an important contribution to make to humanity.

An effective teacher understands that all children pass through the same basic series of developmental tasks, but not at the same rate. She starts with something each child can do, and guides him on to successful achievements at higher levels.

The teacher who has sincere enthusiasm for her work, who loves the good, the true, the beautiful shares a priceless gift with children.

An effective teacher arranges situations for the rejected child to win a place in the peer group.

An ethical teacher keeps her children's problems in confidence. She does not "gossip" about them.

Moderate praise and sincere approval make for better teacher-pupil relationship.

The teacher sets a pattern for her pupils in her grooming, her taste for good music, art, and literature.

Calmness, poise, and a pleasing voice aid in good discipline.

Punishment, to be effective must be given judiciously. The child must know that he can get back into the teacher's good graces.

A wholesome, well adjusted teacher has a tremendous influence on the personalities of her students.

A teacher's genuine interest in the personal success of a student makes him feel that he is an important part of the school.

The teacher who understands pupils stands as a guide and a friend ever ready to help them adjust to realities, successes, and failures. She is reasonable in demands, is impartial and consistent in all dealings with children.

The personality of the teacher, the problem at hand, the student's personalities, and momentary attitudes, are all important things to be considered in the establishment of effective pupil-teacher relationship.

Home Visitation

The connecting link between the home and school is the visit of the classroom teacher. The purposes of home visitation are several. First, to understand the child better and his home situation. Second, to gain the coöperation of the parents. Third, to secure a better understanding between the parents and their children. Fourth, to interpret the program of the school to the community agencies. Fifth, to help the faculty plan a program for each child that will meet his individual needs and help him to fit himself into an acceptable social environment. Sixth, to compile complete records of the home situation of each child and thus give the school a picture of the whole child. Seventh, to instruct the homebound child.

The classroom teacher who visits the homes of her pupils has the same responsibilities as the professional visiting teacher who is trained in both educational and social work. She must be tactful and pleasant in dealing with the parents. Her visits should be friendly and encouraging to the parents and the child. She is there to help and not hurt the family as she advises with them. They should accept her as a friend. It may be necessary for her to make several visits before she has established rapport with the parents and secured the necessary information.

It would be desirable for the classroom teacher to visit regularly all the homes of all the children in her classroom. This visitation may be done at the beginning of each semester or at any time when some unexpected need arises.

The classroom teacher brings in the information concerning the home situation and adds it to the school records. This information may be used in conferences when the teachers decide what is to be done to help the child in meeting his individual needs.

Some of the things she seeks to learn are: the pre-school health and developmental history of the child, the child's place in the home circle, the parents' attitude toward the school and its program, the social and economic status of the family, conditions of home environment which may affect the child, siblings and their relationship to the child's life, social agencies of the community with which the family is acquainted.

Guidance in Special Education

Guidance* is the interlocking thread which runs through the entire process of special education. A well-organized guidance program serves two distinct functions: first, it affords many supplemental services beyond those provided by the school; second, it assists the members of the school staff do their duties in more effective ways. It makes it possible for teachers to learn more about pupils, to learn how to use

*Guidance—the process of assisting the individual in determining analyzing, understanding his interest, aptitudes, abilities, limitations, opportunities, problems, and needs, and in the light of this knowledge to make wise choices and adjustments in order that he may live a fuller life.

tests and records more effectively, and to act as a service bureau for teachers.

According to Erickson and Happ a guidance program should carry on the following six activities: occupational information, personal inventory, counseling, exploration and use of training opportunities, placement, and follow-up work. These show clearly that guidance permeates every activity of the school.

The exceptional child must move within a limited industrial and social sphere. Therefore, in planning his education these limitations must be borne in mind. Emphasis is being placed on obtaining more information about the children who are entrusted to the teacher's guidance. This requires improved means of facilitating the keeping of adequate records for the student.

The essentials of a good record system are: accuracy, objectivity, conciseness, clarity, ease of reference, visibility, uniformity, and up-to-dateness. Provision should be made for cumulative recording of: interviews, letters, anecdotal information, summaries, interpretations, and treatments.

Uses of cumulative records are many. Stated briefly these are:

1. To diagnose pupil needs.
2. To determine the interests and needs of the child.
3. To serve as a basis for building the child's individual curriculum.
4. To assist the counselor in giving sound guidance to the student.
5. To obtain vertical articulation of a student's experience on any grade level.
6. To serve as an indicator of a pupil's probable future success in college or in industry.

All pertinent information concerning a child should be filed in one place as a unit. Anecdotal materials should be used to round out the cumulative record.

The exceptional child should be evaluated constantly and guided to self evaluation. It is imperative that he have measurement as well as normal children. There are various ways

by which all phases of child growth may be measured. Some of these are: psychological tests, achievement tests, mental ability tests, health records, social maturity scales, and self-descriptive inventories.

Just as there are many ways of recording pupil growth of exceptional children there should be means of reporting pupil growth. Some of these are: self-descriptive inventories, interviews, report cards which stress social relationship and social skills, class logs, trade school questionnaires, referral forms, and follow-up studies.

The child in special education must have his horizon widened and his vision broadened. He must be stimulated in laying a foundation of background knowledge or skills, abilities, and attitudes which will enable him to reach outward and upward to those things which seemed impossible at the beginning for him to accomplish. Above all, the pupil should be given an understanding of the environment which will be the most ideal for him to work in. Individual counseling and helping the individual to appraise his strengths and weaknesses should be given as much attention as it is possible to devote to them.

It is easy for one to portray the theoretical concepts in education but it is quite different at times to set in motion general educational objectives to accomplish these aims. According to Harry J. Baker, "The test of any set of aims or objectives does not lie in how well they are formulated but how well they are put into effect. Such is the challenge of exceptional children."[1]

Remedial Instruction

Remedial or corrective instruction in any school subject is needed when children fail to make satisfactory progress* in that subject. Experimental work in diagnosis and remedial techniques has been undertaken in all of the school subjects, but more experimentation has been done in the field of reading.

*Satisfactory progress is defined as achievement that may be reasonably expected in terms of one's abilities.

This has probably been due to the fact that much of the child's school work is dependent upon his reading ability.

> All remedial and corrective work has as its final goal the elimination of the causes of failure. These causes should be detected at an early stage of the child's learning so that the development of severe reading disabilities may be forestalled or prevented.[10]

A program for prevention of reading difficulties deals with readiness for reading.

Children entering the first grade differ widely in their readiness for reading. They come from widely different home environments. Some children come from homes where a foreign language is spoken, others come from English-speaking homes, but because of limited experience are not ready to read; some children have had few books or story opportunities; other children have often made some progress in learning to read before entering school because they come from homes of culture where many books are found.

Children entering the first grade differ in mental, social and emotional maturity, in speech habits, and in physical factors of health, vision and hearing.

First grade children vary in the opportunities they have had for play, for visiting interesting places, and for sharing in wholesome activities with other children.

Because of these variations, the first grade teacher must know the abilities and needs of her pupils as soon as possible. From observation of the child's behavior in following directions, in speaking, in working alone and with others; from interviews with parents, from intelligence tests and reading readiness tests such as the Metropolitan Readiness Test,[9] she will obtain valuable information that will help her in deciding *why* the child is not ready to read. She can then proceed to plan his reading program.

Such a program should include activities that will develop the child socially, give him self-confidence and result in the making of charts that will help in getting the child ready for reading. Here is the teacher's first chance at prevention of reading difficulties. The important thing is that when each

child finally starts to read, he should find it a successful and happy experience.

In developing this program of prevention for beginners, superintendents and principals should see to it that the first grade is not so crowded. Better individual instruction can then be given to the children.

The second essential step for the prevention of reading difficulties is to give children at all levels books that they can read. When children have to struggle with books they cannot read, they form a dislike for reading. Only books within their ability and a motive for using them will cause them to improve in their reading. Every classroom should have a variety of reading material of different levels so that the needs of all pupils may be met. Different books for different groups in a classroom is such an easy way of prevention that it can be adopted anywhere with immediate good results.

The third step for the prevention of reading difficulties is the correction of children's physical handicaps. This calls for an adequate health program in every public school. It is not uncommon to find even the brightest children with serious visual or auditory handicaps which interfere with learning. Neither good readers nor poor readers who have physical handicaps should have to work without having these physical defects corrected.

It is important that corrective measures be applied as soon as a reading difficulty arises. The development of serious reading deficiencies is thus prevented.

A remedial reading program should be made for those children who have not made expected progress. This program will include the following:

a. Diagnosis of difficulties.
b. Planning an individual program for each child in terms of the diagnosis.
c. Operation of the plan.

The following procedure is suggested to aid teachers in making a diagnosis of reading difficulties.

1. The physical, environmental and emotional causes of retardation are discovered to the extent of the teacher's best judgment.
2. The mental ability of the child is determined by an intelligence test.
3. The reading level of the child and his own peculiar reading habits and difficulties are shown by standardized diagnostic reading tests or by silent and oral reading tests.
4. The child's interests, likes and dislikes are discovered by the teacher.
5. The school history of the child—promotions, failures, successes, study habits, lack of attention, lack of interest, inability to get things done must all be taken into consideration.
6. In studying an extreme case of reading disability, most examiners attempt to secure a case history.
7. Since the data secured through diagnostic procedures are to be employed in later remedial teaching, it is very important that there be some organized methods for preserving the data in usuable form.

After studying a particular case of reading disability, the remedial teacher will find it helpful to list the factors which contribute to reading disabilities and to itemize under them all the factors discovered which helped to explain the child's difficulties.

An individual program for each child should then be planned by the classroom teacher in terms of the diagnosis. The segregation of pupils in remedial reading classes tends to give children the impression that reading is dissociated from other subjects. It is for this reason that correction of the child's poor reading habits should if possible be a part of the regular class work rather than a separate program.

Motivation enters into remedial teaching even to a greater extent than in ordinary teaching. For the early remedial instruction, the use of simple, very interesting materials free from difficulties of word recognition and comprehension, and relating to some general interest of the child's is necessary to establish a reading attitude. The reading materials should be presented in such a way that the child can realize he is

progressing. A graph of progress is a good aid in showing the child he is improving. The periods should be kept short enough that the child still wants more at the end.

No single method should be used in remedial instruction. Allowances should be made for individual differences in learning. Some children should be taught by the visual method, others by the kinaesthetic method, and still others need special phonic training. If one method of teaching reading does not succeed, another should be tried. Any method that works is a good method for the child.

The attitude of the teacher toward children with reading handicaps is especially important. She should love children and should have a genuine interest in the retarded child. She should meet the child as a friend. A sympathetic, helpful teacher who will encourage the child to do his best can do much to help him overcome his difficulties in reading.

The teacher should firmly believe that the child can learn to read reasonably well if the right approach, the right technique, and the right materials are administered in a stimulating situation.

Recommendations

The first set of recommendations is directed to the administrators, who could materially assist the program by:

1. Compiling a complete and intelligent census report including handicapped children.
2. Providing necessary materials for caring for special education.
3. Making the program in special eduction reach the community.
4. Providing a health program that includes all students.
5. Making provision for individual differences in all classes.
6. Using cumulative records to diagnose pupil needs and interests.
7. Consulting teachers concerning need of remedial work and implementing it as indicated.
8. Providing time in the daily schedule for teachers to hold conferences with pupils.

9. Abolishing forms of competition and giving each child an opportunity for success upon his own level.

10. Building curriculums that differentiate in content as well as difficulty for exceptional children.

11. Providing a system of recording progress rather than the standard grading system.

12. Encouraging and aiding in the establishment of a good program of guidance including occupational information, personal inventory, counseling, exploration and use of training opportunities, placement, and follow-up.

13. Going about the whole special education program in such a way as to avoid stigma or adverse criticism which might harm any individual.

14. Avoiding segregation for exceptional children except in very extreme cases.

The second set of recommendations is directed to the teachers. Each teacher should:

1. Be a special education teacher.
2. Be well-adjusted emotionally.
3. Teach children rather than subjects.
4. Develop a greater sensitivity to people.
5. Be more alert to all children's needs.
6. Develop better methods of discovering and diagnosing pupils.
7. Accept every child and reject none.
8. Recognize that direct observation is a most excellent way of gathering information about a child.
9. Keep anecdotal records over a long period of time that describe the action or response exactly as it occurred and omit the teacher's opinion.
10. Know the child at home and out of school.
11. Establish good relations with the medical profession.
12. Exchange usable ideas in each field of special education through professional organizations and training courses.
13. Maintain a professional attitude and avoid talk to just anyone regarding the handicapped children taught.

The special education program, in order to be successful, must be a coöperative one. Giving a few teachers responsi-

bility and allowing all others to forget it will inevitably stigmatize the program.

Parents can coöperate by:

1. Encouraging teachers to visit the home and to know the parents.
2. Reporting candidates for special education before they reach school age.
3. Providing a record of pre-school health and developmental history of the child.
4. Helping the teachers to know the child's place in the home circle and to know the conditions of the home environment which may affect the child.

The final recommendation is that all agencies, state and local, coördinate their efforts to serve children who are already exceptional, and that programs of prevention be worked out that will keep the number of children to a minimum who need special services.

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Appendix B

A list of books containing practical suggestions, speech games, drills, and word lists that may be found helpful in the speech-correction program:

Barrows, S., and Hall, K., *Games and Jingles for Speech Development*, Expression Co., Magnolia, Mass., 1936.

Barrows, S., and Pierce, A., *The Voice: How to Use It*, Expression Co., Magnolia, Mass., 1933.

Case, I., and Barrows, S., *Speech Drills for Children in the Form of Play*, Expression Co., Magnolia, Mass., 1929.

Manser, R., *Speech Correction on the Contract Plan*, Prentice-Hall, New York, 1936.

Mulgrave, D., *Speech for the Classroom Teacher*, Prentice-Hall, New York, 1937.

Nemoy, E., and Davis, S., *The Correction of Defective Consonant Sounds*, Expression Co., Magnolia, Mass., 1937.

Raubicheck, L., Davis, E., and Carl, L., *Voice and Speech Problems*, Prentice-Hall, New York, 1939.

Schoolfield, L., *Better Speech and Better Reading*, Expression Co., Magnolia, Mass., 1937.

Woods, A. L., *The Jingle Book for Speech Correction*, E. P. Dutton, New York, 1934.

Appendix A

SOURCES AND KIND OF AID AVAILABLE TO CRIPPLED CHILDREN

Source of Aid

1– 6 Governmental
7–15 Associations of national scope
16–20 Civic Organizations

Source of Aid	Kind of Aid Offered: Direct Aid — Pays Hospitalization : Surgery	Special Medicines ; Nursing Care	Lab Tests, Transfusions, X-rays	Physical Therapy	Occupational Therapy	Braces and Crutches	Special Corsets, Shoes, Casts	Wheel Chairs, Invalid Walkers	Artificial Limbs	Kenny Hot Pack Treatments	Transportation	Indirect Aid — Vocational Ed. or Education	Books, Supplies, Tuition	Scholarships for the child	Fellowships for teachers or for Physiotherapy and Occupational Therapy	for doctors of Physical Medicine	Promotion of Health Education	Foster Home Care	Convalescent Home Care	Publicity through Publications	Publicity Through Loan Library	Publicity through Films	Refer to other Agencies	Funds for Research	Limitations — Funds to Provide Nutritious Lunches	Only Mentally Normal Children Taken	Pays only on Indigent Cases	Limited on Range of Disabilities	Pays Within Stated Age Limits
1. Federal Security Agency, Children's Bureau Washington, D.C. —State Dept. of Health, Austin Cripple Children's Div. Mr. J. L. Tenney, Admr.	1	2	3	4	5	6	7	8	9	10	11							19	20				24			Yes	Yes	Yes	Yes
2. Federal Security Agency, Office of Vocation Rehabilitation Washington, D.C. —State Board of Vocational Education, Austin Mr. J. J. Brown, Dir.	1	2	3	4	5	6	7	8	9			12	13										24					Yes	Yes
3. U.S. Public Health Service Washington, D.C. —State Dept. of Health, Austin, Texas Dr. George W. Cox, State Health Officer																	18			21	22	23	24						
4. U.S. Dept. of Agriculture Pro. & Mark. Admr. Washington, D.C. —State Dept. of Education, Austin School Lunch Program																									26				Yes
5. Office of Education, Washington, D.C. —State Dept. of Education, Division of Special Education Mr. H. E. Robinson, Dir.												12	13				18			21			24			Yes		Yes	Yes
6. Veterans' Administration, Washington, D.C. —State Reg. Office, Dallas Area offices at San Antonio, Dallas, Waco, Houston and Lubbock	1	2	3	4	5	6	7	8	9	10	11	12	13							21		23	24						
7. The National Society for Crippled Children and Adults, Inc. 11 South LaSalle Street, Chicago, Illinois —The Texas Soc. for C.C., 3703 Worth St., Dallas, Texas Mr. Martin Ricker, Exec. Sec., Dr. Sam Whitley, Pres.	1	2	3	4	5	6	7	8	9	10	11	12	13				18	19	20	21	22	23	24						
8. The National Foundation for Infantile Paralysis 120 Broadway, New York —Texas State Representative, Mr. John Loughlin, City Health Center, San Antonio	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	18			21		23	24	25			Yes		
9. The Kenny Foundation for Infantile Paralysis, Kenny Institute, Minneapolis, Minn.	1	2	3	4	5	6	7	8		10														25			Yes		
10. Joint Orthopedic Nursing Advisory Service Miss Jessie L. Stevenson, 1790 Broadway, New York																	18			21			24						
11. The American Physiotherapy Association Miss Susan Roen, Pres., 2400 S. Flower, Los Angeles —Pres. Texas Chapter, Miss Eve Prettyman Scottish Rite Hosp., Dallas, Texas.														14	15	16	18			21	22	23	24	25					
12. The American Registry of Physical Therapy Tech. 30 North Michigan Ave., Chicago, Illinois Exec. Sec., Miss Marion Smith																	18			21	22	23	24						
13. The Baruch Foundation for Physical Medicine 597 Madison Ave., New York																17	18			21			24	25					
14. The American Medical Association 535 N. Dearborn St., Chicago, Illinois —Texas, S.M.A., Dr. Holman Taylor, Dallas, Exec. Sec.																	18			21	22	23	24	25					
15. The American Legion, Child Welfare Div., Indianapolis, Ind. Contact local Crippled Children's Committee	1	2	3			6	7	8	9		11									21			24						
16. The Shrine, Scottish Rite, Master Masons Contact local lodges Nearest Hosp.—Shrine Hosp., Shreveport, La., Scottish Rite, Dallas	1	2	3	4	5	6	7	8	9	10	11	12	13					19		21			24				Yes		Yes
17. The Rotary Clubs Contact local Crippled Children's Committee	1	2	3	4	5	6	7	8	9	10	11						18			21			24						
18. The Elks Clubs of America—Contact locally The Texas Elks Crippled Children Institution, Inc. 4703 Fannin St., Houston, Texas	1	2	3	4	5	6	7	8	9	10	11						18			21			24						
19. The General Federation of Women's Clubs —Texas Fed. W.C.—Contact local health chairman																	18			21			24						
20. The Nat. Fed. of Business and Professional Women —Texas Federation of B. and P. W. Contact local health chairman	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26			

Appendix C

WEIGHT-HEIGHT-AGE TABLE FOR BOYS OF SCHOOL AGE

Height Inches	Average Weight for Height, Pounds	Age, Years														
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
38	34	34	34													
39	35	35	35													
40	36	36	36													
41	38	38	38	38												
42	39	39	39	39	39											
43	41	41	41	41	41											
44	44	44	44	44	44											
45	46	46	46	46	46	46										
46	48	47	48	48	48	48										
47	50	49	50	50	50	50	50									
48	53		52	53	53	53	53									
49	55		55	55	55	55	55	55								
50	58		57	58	58	58	58	58	58							
51	61			61	61	61	61	61	61							
52	64			63	64	64	64	64	64	64						
53	68			66	67	67	67	67	68	68						
54	71				70	70	70	70	71	71	72					

WEIGHT-HEIGHT-AGE TABLE FOR BOYS OF SCHOOL AGE
—Continued

Height Inches	Average Weight for Height, Pounds	Age, Years														
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
55	74				72	72	73	73	74	74	74					
56	78				75	76	77	77	77	78	78	80				
57	82					79	80	81	81	82	83	83				
58	85					83	84	84	85	85	86	87				
59	89						87	88	89	89	90	90	90			
60	94						91	92	92	93	94	95	96			
61	99							95	96	97	99	100	103	106		
62	104							100	101	102	103	104	107	111	116	
63	111							105	106	107	108	110	113	118	123	127
64	117								109	111	113	115	117	121	126	130
65	123								114	117	118	120	122	127	131	134
66	129									119	122	125	128	132	136	139
67	133									124	128	130	134	136	139	142
68	139										134	134	137	141	143	147
69	144										137	139	143	146	149	152
70	147										143	144	145	148	151	155
71	152										148	150	151	152	154	159
72	157											153	155	156	158	163
73	163											157	160	162	164	167
74	169											160	164	168	170	171

Appendix C—continued

WEIGHT-HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE

Inches Height	Average Weight for Height, Pounds	Age, Years													
		5	6	7	8	9	10	11	12	13	14	15	16	17	18
38	33	33	33												
39	34	34	34												
40	36	36	36	36											
41	37	37	37	37											
42	39	39	39	39											
43	41	41	41	41	41										
44	42	42	42	42	42										
45	45	45	45	45	45	45									
46	47	47	47	47	48	48									
47	50	49	50	50	50	50	50								
48	52		52	52	52	52	53	53							
49	55		54	54	55	55	56	56							
50	58		56	56	57	58	59	61	62						
51	61			59	60	61	61	63	65						
52	64			63	64	64	64	65	67						
53	68			66	67	67	68	68	69	71					
54	71				69	70	70	71	71	73					

WEIGHT-HEIGHT-AGE TABLE FOR GIRLS OF SCHOOL AGE
—Continued

Inches Height	Average Weight for Height, Pounds	Age, Years													
		5	6	7	8	9	10	11	12	13	14	15	16	17	18
55	75				72	74	74	74	75	77	78				
56	79					76	78	78	79	81	83				
57	84					80	82	82	82	84	88	92			
58	89						84	86	86	88	93	96	101		
59	95						87	90	90	92	96	100	103	104	
60	101						91	95	95	97	101	105	108	109	111
61	108							99	100	101	105	108	112	113	116
62	114							104	105	106	109	113	115	117	118
63	118								110	110	112	116	117	119	120
64	121								114	115	117	119	120	122	123
65	125								118	120	121	122	123	125	126
66	129									124	124	125	128	129	130
67	133									128	130	131	133	133	135
68	138									131	133	135	136	138	138
69	142										135	137	138	140	142
70	144										136	138	140	142	144
71	145										138	140	142	144	145

Appendix D

SAMPLE WORK PERMIT

.....19.....

To the Principal:

Please permit.....to leave school at.....o'clock to work for.....as.....

Firm or Individual Kind of Work

He will work from.....o'clock until.....o'clock. His birthday is.....

Month Day Year

.....

Signature of Employer

.....

Signature of Parent

.....

Business Address

.....

Home Address

.....

Business Phone

.....

Phone

Approved.....19.....

.....

Principal

Note to Parents: In order to be employed a child must be 16 years of age. Pupils under 16 years of age must secure a work permit from the County Judge. Pupils who have not completed the seventh grade must secure a work permit from the County Judge by showing proof that their employment is necessary for the support of the family.

Follow-Up Reports: I certify that the child for whom this permit was issued is doing satisfactory work in school and on the job. (If work is not satisfactory, report conditions and recommendations on the back of this sheet.)

.....

Signature of person in charge of work program

1. ..... 4. .....

2. ..... 5. .....

3. ..... 6. .....